Phys Ed.

SCHOLASTIC COACH

MARCH 1935 25c

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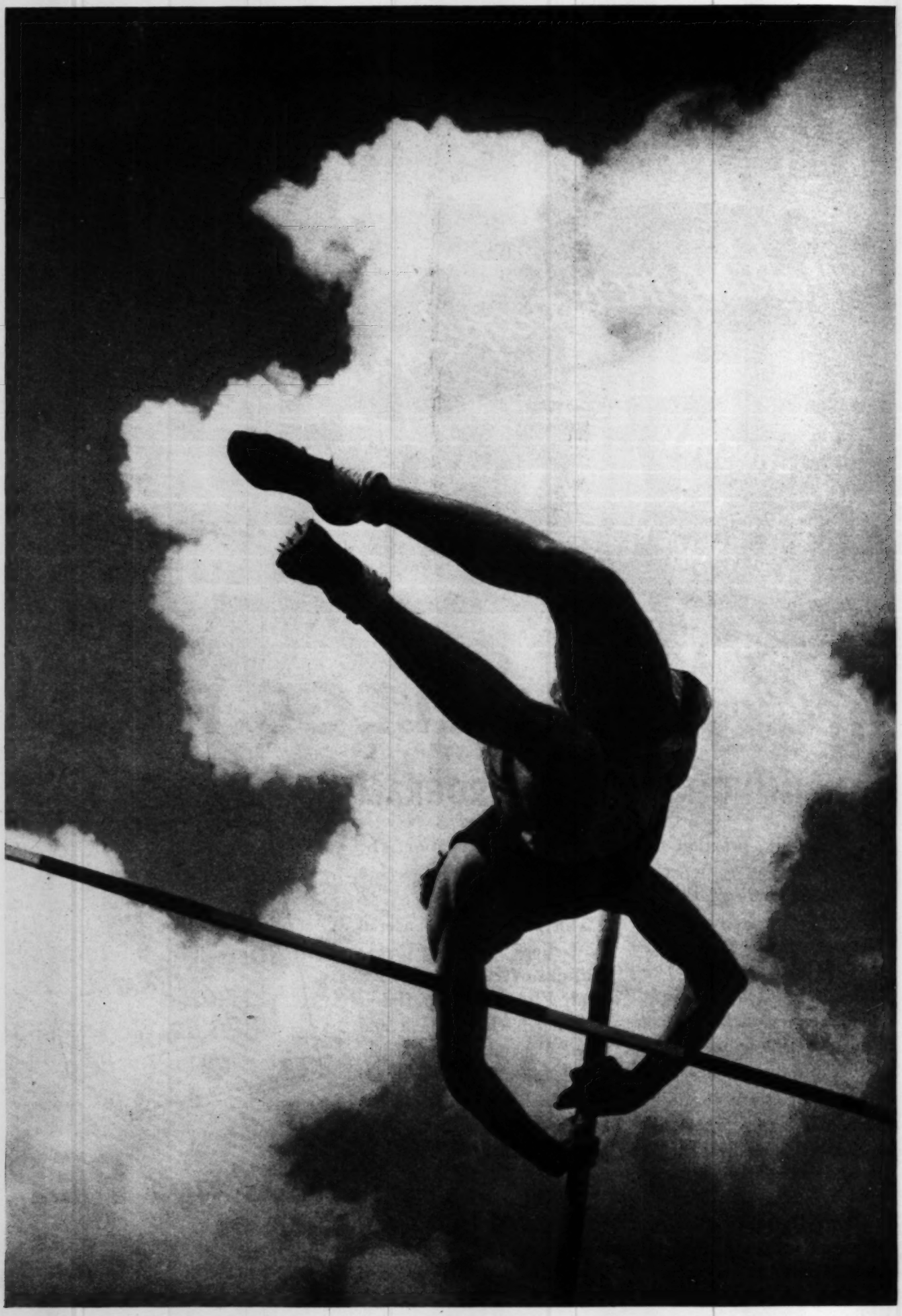

SCHOLASTIC COACH

Reg. U.S. Pat. Off.

IN THIS ISSUE VOL. 4, NO. 7

JACK LIPPERT, Editor OWEN REED, Associate Editor

The editor will be glad to consider any manuscripts and photographs submitted to him for publication, if accompanied by stamped addressed envelope for return, if unsuitable.

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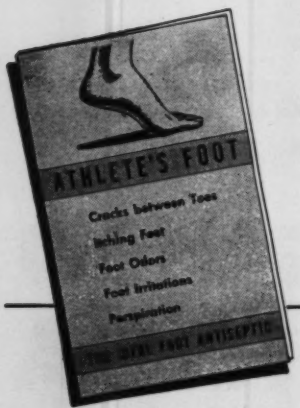

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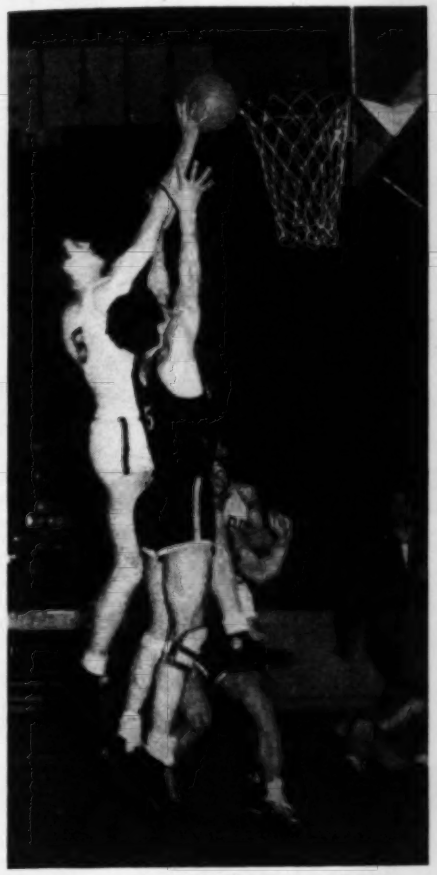

EXHIBIT A
Dunking by Seward of Purdue

HERE BELOW

When they talk of throwing out the center jump, Dr. Allen suggests raising the baskets

"DUNKING isn't basketball," says Dr. Forrest C. Allen in an article in the February *Country Gentleman*. Dr. Allen is the leader of a movement to raise the baskets to a height of twelve feet, to give the player of average height a more equitable share in the rewards of under-basket play. As it is now, it is "shooting for the little fellow and dunking for the big boy," as the Kansas coach puts it. (See Exhibit A above.)

The chances that 12-ft. baskets will be adopted by the National Basketball Committee at its spring meeting are not very great. Even if the change were imminent, there is little likelihood that it would apply to high schools. Evidently, there are not enough tall high school players to make dunking the problem to high school basketball that it is to the college game.

Dr. Allen would perhaps be less active in promoting 12-ft. baskets were it not for the strength of another reform movement which favors the elimination of the center jump. There is a question of relative values bearing on these two "tall-man" situations. We asked Dr. Allen for some comment on this question and he responded as follows:

"So long as coaches talk of eliminating the center tipoff, then I use the 12-ft. basket argument to show the real cause of dissatisfaction over the tall man. I have always maintained that the tall man beats you under the rebound at either the offensive or defensive basket, and my argument for raising the basket to twelve feet is that the area of dispersion from the rebounds is much greater on a 12-ft. basket than on a 10-ft. basket. Therefore, the players must be further out on the court, and not under the basket as many of them are now, to play a rebound on a higher basket. And, by having a 12-ft. basket, the tall players could not dunk them in as they are doing now.

"My added argument is that with 12-ft. baskets the little fellow could easily arch his shot two feet further, and the big fellow would have to *shoot* the ball instead of dunking it.

"Moreover, to eliminate the center jump and retain held balls as we now have them, is to disregard the real source of disadvantage arising from all toss-ups. Statistics on our home games this season show that held balls occurred two-thirds as often as center jumps. And for the center tipoff the two jumpers are more evenly matched than any other two jumpers are apt to be on the court. Each coach gets his best jumper for the center tipoff, while on a held ball jump you may have the shortest man on the team jumping against the tallest. This would never obtain on the center jump proposition."

Complaint Dep't

EARL E. OLSON, coach of the high school at Balaton, Minnesota, writes in to call a personal foul on us for our interpretation of the strip of continuous-action pictures on page 23 of the February issue, which showed a set out-of-bounds play under the basket. Mr. Olson says we presented as a legitimate maneuver that which is in reality face guarding, for which a personal foul should have been called. In case you do not recall the strip of pictures in question we are reproducing one frame from the strip herewith (see Exhibit B). Players 1 and 3 are teammates, facing their own basket. Player 1 has just received a high pass from a teammate out-of-bounds under the basket. Player 3 has taken a well-spread position behind Defensive Player 2, with his back to him. Player 3 stands with his back to Player 1 and his guard because it is part of the deception of the play for Player 3 to fake reception of an imaginary pass which his out-of-bounds teammate fakes to him. The mechanics of the play are apparent: In moving to cover Player 1's diagonal dribble, Defensive Player 2 is screened off by Player 3, who, as all the pictures showed, stood perfectly still. A player cannot commit face-guarding as long as he stands still, regardless of whether he disregards the ball. And if personal contact ensues between Player 3 and Defensive Player 2 when the latter moves to cover Player 1, the foul, if any is called, should certainly not be on Player 3, who has stood still, but on Defensive Player 2 who unwittingly bumped into him. Now, this may not be fair, but at the current writing it is law.

So, as long as Player 3 does not move there cannot justly be a foul called on him. And even though he moved and became a moving screen no foul could justly be called on him for face-guarding unless he was facing an opponent and disregarding the ball. No doubt it was something we wrote in the caption to the pictures in which

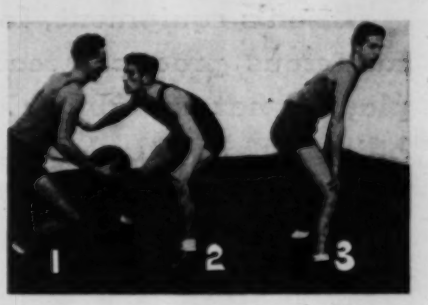

EXHIBIT B
Is 3 Face-guarding?

Mr. Olson saw face-guarding. The pertinent part of the caption said: "If the screen player sees that a successful defensive switch is about to occur, he can become a moving screen to discommode the switchers." In event the play took this turn (which it did not in the pictures) Player 3 would, if he were clever, protect himself against a charge of face-guarding by turning in such a way that he would not be facing either defensive player, and at the same time would avoid causing personal contact by the move.

We are glad that Mr. Olson brought up the point, because it gives us a chance to show off our technical knowledge of a game which is becoming more and more like a game of chess. Pretty soon it will be necessary for a player to jump over an opponent if he wants to get around him.

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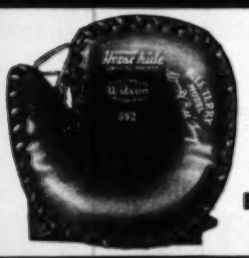

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MECHANICS OF THE SHOT PUT

By Thomas Kirk Cureton

Shot putting reduced to a science by analysis made from Springfield studies

This is the third of Prof. Cureton's series of five articles on the laws of physics and body mechanics as applied to performance in track and field events.

CONSIDERATION of the laws of projection leads to an understanding of some of the principles which govern efficiency in shot putting. A brief summary will be given of experiments conducted by the writer at Springfield College in which the important factors governing success in shot putting have been investigated. *These experiments permit the flight of a shot to be accounted for so completely that it can be represented by a mathematical formula which accounts for the distance of the put to better than 99% accuracy.*

It is obvious that these conclusions are of great value to coaches because the analysis reduces this type of athletic action to a science. An understanding of the principles involved is essential to accurate coaching.

Just as the range finder uses scientific principles to aim the projectiles of a big gun, the coach can direct the athlete how to obtain the maximum distance for his capacity if he understands the application of elementary mechanical principles of projection and the laws of power and motion. The shot is an object which has to be moved or projected through space; hence these laws apply.

The major physical factors involved are:

1. Power (Force $\times$ Velocity of the push).
2. The Angle of Projection from the hand.
3. The Weight of the shot.
4. Body Build.

Methods of analysis — Techniques have been perfected as a part of the work in the physics laboratory which permit remarkably accurate data to be taken directly from the moving picture film. Speeds, distances, angles and, indirectly, forces can all be measured with precision. The film is timed by photographing a falling ball, preferably in the same series of pictures which represent the act. Using the law of falling bodies, $s = \frac{1}{2} gt^2$, the time of the act can be computed. In Illus. I, $s = 6.75$ ft.

$g = 32.2$ ft./sec.^{2}

Therefore,

$$6.75 \text{ ft.} = \frac{32.2}{2} t^2$$

$$t^2 = \frac{6.75}{16.1} = .419$$

$$t = \sqrt{.419} = .65 \text{ sec.}$$

The number of shutter clicks being counted as 28 during the fall of the ball, the time per click equals,

$$t = \frac{.65}{28} = .023 \text{ sec./click.}$$

Since there are three clicks to each picture (frame in the film), the time of each frame is $.023 \times 3 = .069$ sec. It is more convenient to work directly in terms of shutter clicks.

ILLUS. I.

Angles can be scaled directly with a protractor after the film is projected. Care must be used in photographing the act to eliminate perspective error. This is done by locating the camera quite a distance away and using a telephoto lens. The camera should also be located so that its line of sight is perpendicular to the direction of flight and placed midway between the extremes of its beginning and end.

Speed (velocity) can be computed from measurements of distances and times.

v = velocity in ft./sec.
s = distance in ft.
t = time in sec.

$$v = \frac{s}{t}$$

Distances can be scaled from the film by measuring the projected image and multiplying the measurements by a *multiplier*. For instance, in Illus. I, the height of the ball from the ground is scaled 86 mm. It is actually 81 inches. The multiplier is $\frac{81}{86} = .94$, meaning that each millimeter measured equals .94 inches.

Proof that flight of shot can be represented by mechanical formulae. An example is given of an actual verification of the applicability of the projection laws to the flight of the shot. In Illus. II the athlete is putting the shot. It follows a parabolic course of flight and covers distance S. If the shot had departed from point B and had landed at point C, it would be a simple matter to compute the distance D by the formula, $D = V_o \cos \theta \, t$, in which

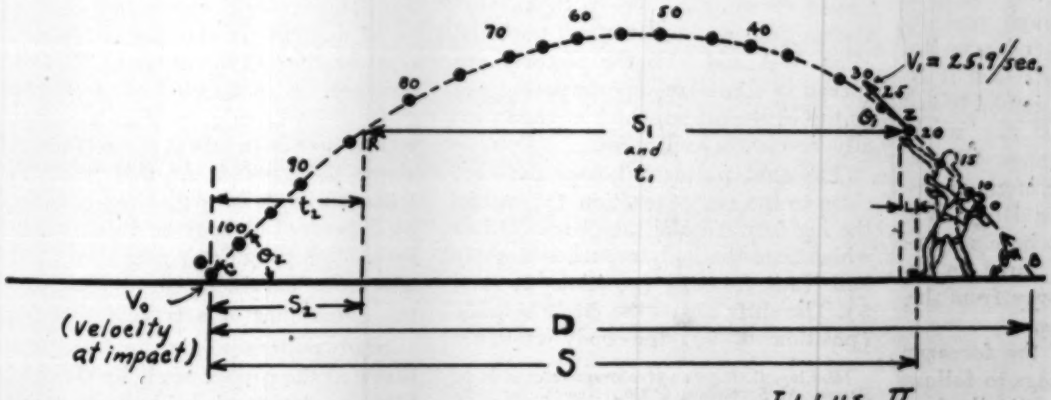
V_o = initial velocity,
$\cos \theta$ = angle of take-off,
t = time of flight from B to C.

Due to the fact that the shot left the hand at position (Z), 7.3 ft. above the ground, the formula must be modified to meet this condition.

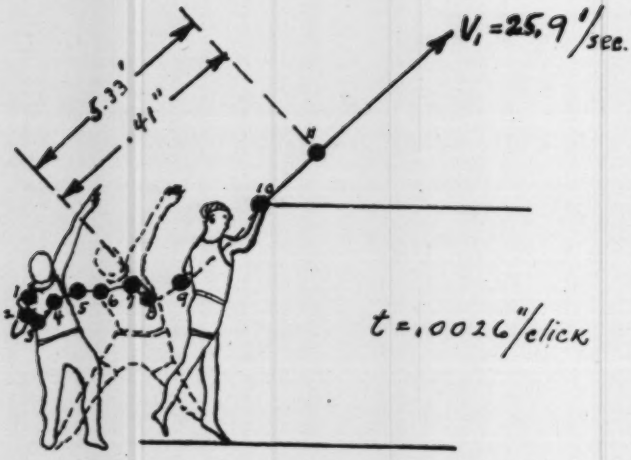
$S_1 = V_1 \cos \theta_1 \, t_1$,
$S_2 = V_o \cos \theta_2 \, t_2$,
L = Correction to toe board,
$S = S_2 + S_1 + L$.

Measurements from the screen gave the following values:

Subject .....Fowler.
Shot .....12 pounds
V_1 .....25.9 feet/sec. (velocity of shot leaving the hand).
θ_1 .....46° (angle at which shot left hand).
t_1 .....1.804 seconds (time of flight in upper parabola Z to R).
t_2 ..... .234 seconds (time of shot in falling from R to C).
V_o .....22.1 feet/sec. (velocity of shot striking ground).
θ_2 ..... 53° (angle of contact with ground).



ILLUS. II.



ILLUS. III

Substituting the values above in the equation,

$S = V_1 \cos \theta_1 \, t_1 + V_o \sin \theta_2 \, t_2 + L$
$= 25.9 \times .695 \times 1.8 + 22.1 \times .798 \times .234 + 1.0 = 37.53$ feet.

Computed Distance = 37.53 ft.
Measured Distance = 37.5 ft. With Tape

Computation of the Force applied to the Shot. It is interesting to compute the force which is applied to the shot. It is to this force and the speed with which it acts that the acceleration of the shot is due. The law of physics which explains this action is,

$F\,D = \frac{1}{2} MV^2$, in which

F = force,
D = distance which the force acts,
M = mass of the shot,
V = velocity of shot leaving hand.

The data is taken from illustration III:

$$F \times 5.33 = \frac{12}{32 \times 2} (25.9)^2$$

$F = 23.6$ pounds.

The same answer may be obtained by using the acceleration formula,

$F = Ma$ (Newton's law of accelerated motion, neglecting air resistance).

Substituting the same values,

$$F = \frac{W}{g} \frac{(V_1 - O)}{t},$$ the value for t being taken as .41 sec.; the time of the push from positions 8 to 11 (see Illus. III)

$$F = \frac{12}{32} \times \frac{25.9}{.41} = 23.6 \text{ pounds.}$$

The result is approximately twenty-four pounds of force. This force acts to overcome the inertia of the shot and to produce the acceleration.

It would seem that the force should be more. However, a rough test of pushing strength in an endeavor to straighten the elbow shows that it is a reasonable value. The action is inefficient, first because of the weak first class lever arrangement of the elbow joint and the acute angle of insertion of the triceps (see Illus. IV) and, secondly, because it becomes increasingly hard to exert force on an object which is moving away from the body.

Speed of extension of the forearm and fast reaction in the legs to follow the shot through are theoretically factors of great importance. Great strength may be of little value unless it can act quickly.

Power is Force times Velocity. Power is the basis of energy imparted to the shot. In physics it is represented by the product of force times velocity. The shot must be pushed with force to overcome its inertia and weight but *speed* of action is important because the shot cannot have a faster velocity than the hand from which it departs. The successful shot putter must not only have strength but must be able to apply it fast enough to keep exerting force on the shot as it travels away from the body. The time of this push is less than half a second. McCloy[1] analyzed this phase of the problem and pointed out that the force needed will vary as the square of the velocity; the power will vary as the cube of the velocity and the 1.5 power of the range (distance of the put).

A test of the speed with which athletes could extend the forearm against resistance would undoubtedly develop results which could be used to predict the most efficient and least efficient shot putters. It is thought that speed can be developed by practice but there is not much evidence on this point.

Description of the act. The shot putter shown in Illus. V-A and Illus. V-B is reproduced by tracing the projected image of the moving film. The positions correspond to the numbers which indicate the position of the shot in Illus. III. By reference to these three illustrations the movement of the shot and the corresponding body postures can be observed. In Illus. III the action portrayed is continued showing the true trajectory of the shot during the shift and push. In Illus. V-A and V-B the pictures are spread to eliminate superimposing one on top of the other, which method usually results in confusion.

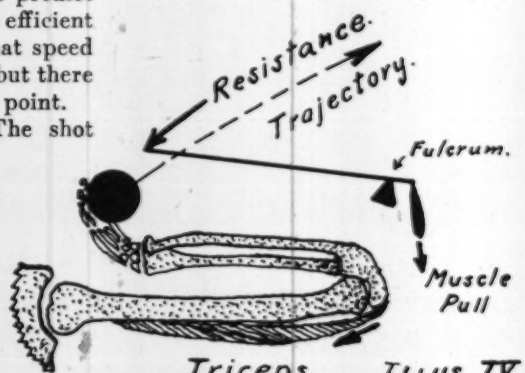
The shot putter balances the shot close to the neck (position 1), swings the leg forward and then backward at which time the body crouches slightly and leans forward (positions 2, 3, 4, 5). The shift across the circle is made (position 6, 7), the body crouches slightly again (position 8) and the push begins here. It is applied as fast as possible aiming at a point half way between the zenith and the horizon (positions 8, 9, 10, 11). The follow through is as complete as possible (12, 13), even to pushing the shot off the finger tips with a flip and twist of the wrist.

The subject shown in the illustrations practically checked the forward motion of the shot at position 7. If this is done, the shift is almost useless. The ideal is to have the speed of the shift added to the speed of the arm extension to give the hand the greatest possible speed forward with respect to the ground.

The reverse is supposedly an aid to the follow through, adding to the speed and keeping the hand in contact with the shot as long as possible. There is not enough data now to prove its effectiveness.

The shot should be kept in line with the pushing foot and the path of flight, following the path of the theoretical parabola which runs from the foot, up through the body and arm to the shot and on into the external path of flight.

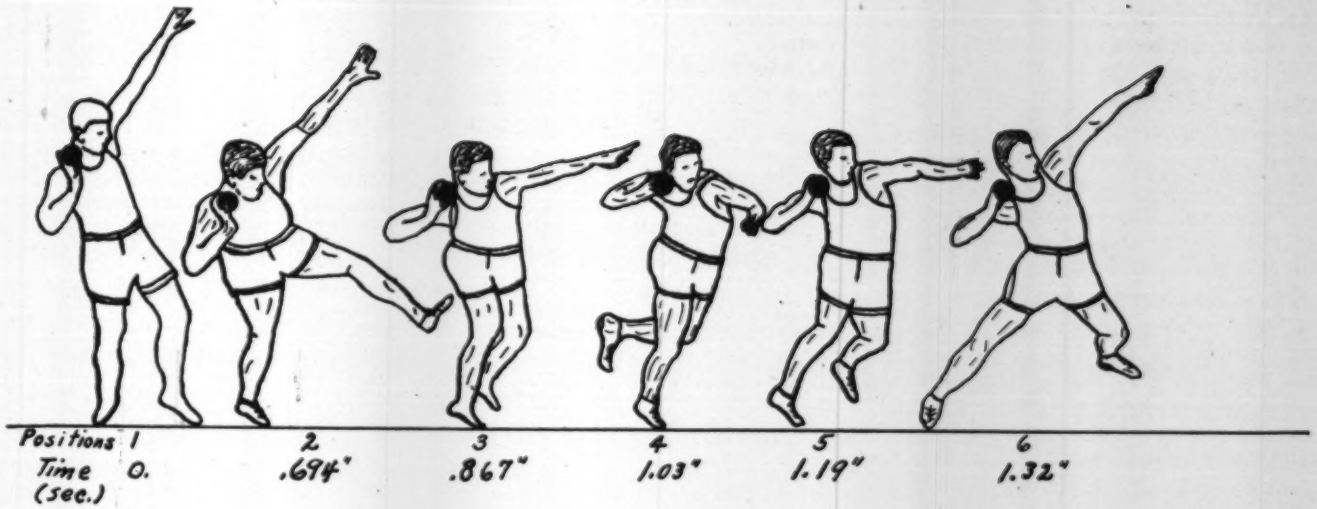
The Angle of Projection. The angle at which the shot is projected from the hand is of great importance. The force must be properly directed. It is a well known fact that a garden hose with a constant force of flow will project water the farthest distance when the water leaves the nozzle at an angle of 45 degrees. In this case the nozzle must be close to the ground. The shot, however, is not released from the ground but from a point on the theoretical parabola about 7 to 7.5 feet above the ground. At this point the optimum angle of projection is nearer 41 degrees. This may be demonstrated by photography or by graphical methods on a parabolic curve plotted to the dimensions of a typical shot put.



ILLUS. IV
WEAK FIRST CLASS LEVER IN ELBOW

Shot putters might be trained to throw at the proper angle by throwing between strings placed between stand-

[1] McCloy, C. H., *The Measurement of Athletic Power*, A. S. Barnes & Co., New York, 1932, p. 19.



ILLUS. V-A

ards located out in front of the shot put circle. Some men learn the proper angle by trial and error, finally using that which gives the greatest distance. Some men, however, are always uncertain. There should be no uncertainty in theory, only one angle will give the best results, that of 41 degrees at the hand and so that the shot lands at a 45-degree angle with the ground. Some men on their home grounds will sight the top of a tree or house as a guide.

Experiments were made with men putting the shot through a system of strings as described. The angle of projection was determined by measurement, distances A to B and C to D (Illus. VI, p. 10). Calibration of this method against the photographic method indicated that the angle obtained by measuring the distances of the triangle ABC was consistently small by three or four degrees. This was due to the fact that the shot was actually curving downward on its way to the strings. Allowing for this correction, the optimum angle is shown to be about 41 degrees.

Weight of the shot as it affects Distance. Three methods of projection were studied in relationship to weight and distance. The results are shown in Illus. VII (On p. 23). The throws were made through two strings which were adjusted to the optimum angle for each man. Thus, the angle was controlled and kept constant. Due to the fact that men are of slightly different height some adjustment was necessary.

It may be seen that *throwing* is more efficient for light weight objects; *whipping* with a straight arm is next best for light objects and *pushing* least effective. However, at approximately 10.5 pounds pushing is as good as the other two methods and with heavier weights than 10.5 pounds is the most effective method, at least with the subjects used in this experiment who were large and powerful men. There seems to be little need for the rule against throwing the shot, particularly among youngsters and in using the 16 pound weight.

Body Build and other factors. Project studies at Springfield College by Hawkes,[2] Johnson[3] and Graham[4] show that height, weight, arm span, grip and strength as well as neck girth and lateral body build all correlate to some extent with shot putting ability when the average effect over a large group of athletes is considered.

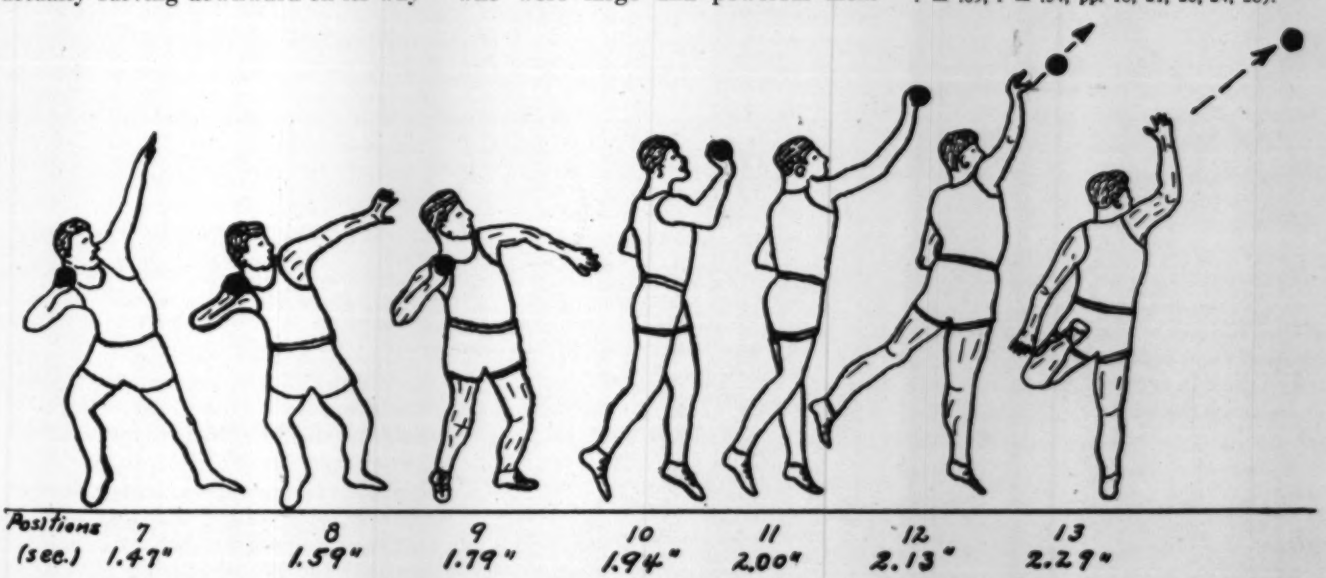
MacCurdy[5] gives evidence to show that shot putting ability correlates highly with general athletic ability among senior high school boys. In

[2]Hawkes, W. E., *Variation in Shot Putting as Related to Height, Weight, Arm Span and Grip Strength*, project in anthropometry and body mechanics, 1932, Springfield College.

[3]Johnson, L. W., *Neck Girth and Shot Putting Ability*, Springfield College, project in anthropometry and body mechanics, 1932.

[4]Graham, D. F., *Body Type Related to Athletic Performance*, Springfield College, project in anthropometry and body mechanics, 1932.

[5]MacCurdy, H. L., *A Test for Measuring the Physical Capacity of Secondary School Boys*, doctorate, Columbia University, 1933. (r = .81, r = .69, r = .54, pp. 18, 21, 23, 24, 28).



ILLUS. V-B.

fact, ability to put the shot is one of the best single tests of all-around athletic ability.

McCloy[6] gives an excellent line of reasoning to show why performance should increase with weight, height and age. Weight correlates with shot putting ability because it is generally true that heavier builds have a greater proportion of muscle tissue with correspondingly greater force.

Champion shot putters are as a rule large men but it should be emphasized that they are also remarkably agile. The present world record holder, Jack Torrance, is such a combination, weighing 290 pounds. He holds the world's mark of 57'-17/32 inches. Other champions, such as Rose, Rothert, Krenz, Lyman and Torrance have all been large and powerful men.

Summary and Discussion with Suggestions for Development and Training. Through the use of mechanics it has been shown that the flight of the shot from the hand until it strikes the ground can be accounted for to a remarkable degree of accuracy. The flight is governed by (1) The angle of projection and (2) The velocity of projection.

The angle can be controlled fairly well by the method of putting between strings properly set until the right angle is learned.

The second factor of velocity is more serious. It is governed by the power of the push. The development of this power is both a matter of internal neuro-muscular development and external correctness of form. The capacity for great neuro-muscular force has hardly been fully explained but it is certain that muscles cannot act with force, speed and exact coordination unless strongly and properly inervated. The kind of nervous system which one has is undoubtedly part of the explanation. The quickness of the movement is governed by the nervous factor. It is believed that speed work, such as sprinting and bag punching and jumping, will help to condition the nervous system for speed. Also, it is important to get good rest and food.

Strength is due to enough muscle, the strength increasing with the physiological cross section of the muscle fibres. One must do strength work to develop strength. Push-ups, medicine ball work, or pulley weights are good for this development. In the developmental stage such training must be long and hard. The whole body must be conditioned. Force exerted on the shot is due to the legs and trunk reinforcing the arm push. The whole body works in the push with the ankles, knees, hips, shoulder, elbow and wrist extending vigorously to transmit the power to the shot.

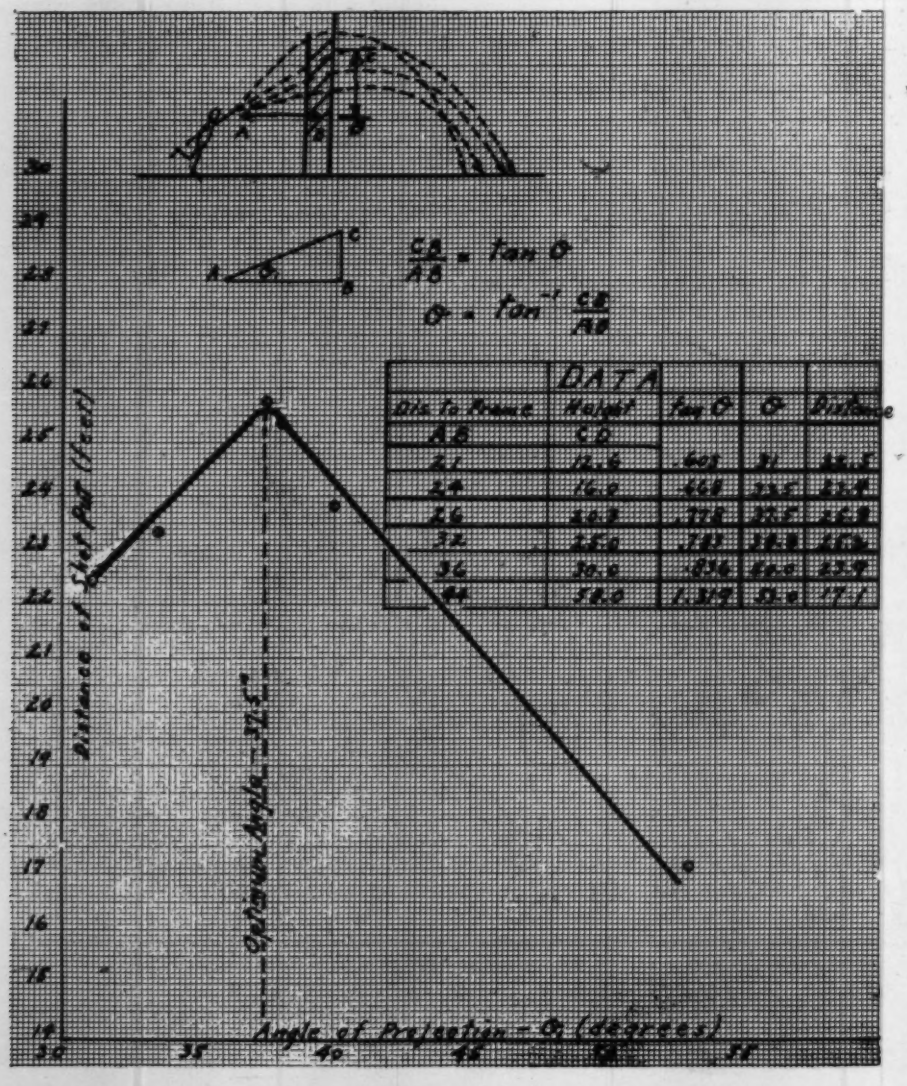
The feet must be in firm contact with the ground during the first half of the push when the inertia of the shot is greatest. Spikes in the sole and heel of the shoe serve as a precaution to slipping. The slightest slip or give between the feet and the ground diminishes the effective force delivered to the shot. The mechanical law of reaction should be kept in mind. It states that *for every force there is an equal and opposite reaction.* As applied to the shot, the leg joints extend and push the body upward from the ground against the shot. The shot has inertia and this acts as resistance to the push. Solid ground gives the base against which the legs push. The importance of good stance and contact with the ground can be visualized by trying to put a shot with roller skates on the feet. The arm immediately seems to lose all of its power to project the shot because the feet slide backward and the body alignment is destroyed. This illustration emphasizes the importance of good traction between the feet and the ground during the push. Even when the arm is extending during the second half of the push, there is some acceleration of the shot and its inertia produces a reaction which travels downward through the body to the ground.

Speed should be sought if the shift across the circle is used. However, the forward and upward speed of the shot should be checked at the end of the shift as little as possible. If the shot comes to a complete stop at position 8, the shift is useless. The objective is to have the velocity of the shot during the shift add to the velocity of the push. It is easier to push a shot after it is already in motion.

It should be emphasized that the shot should be rolled up off of the fingers with a push and flip of the wrist. Even this little extra pressure is helpful.

A shot putter should be in good condition for explosive effort. Deep breathing just before the effort and holding the breath during the effort has proved beneficial to many. There is some experimental evidence to show that deep breathing will increase the force of a sudden effort. It is natural to hold the breath during any great effort.

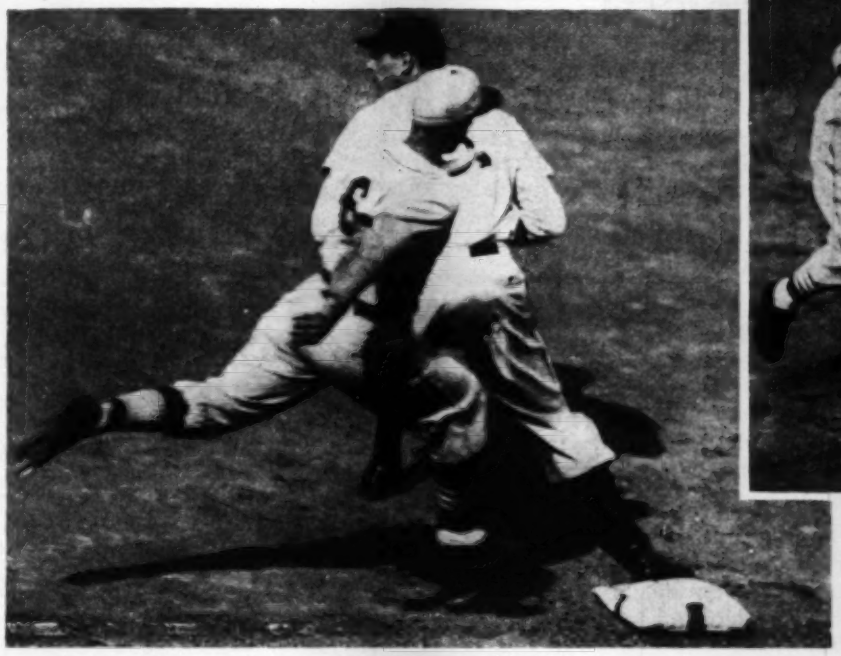
Illus. VI. Optimum Angle of Projection (12 lb. shot)



[6]McCloy, C. H., *The Measurement of Athletic Power*, op. cit., pp. 45.

SPEEDING UP BASEBALL

By Jack Bailey



"The man who coached him knew how many runners are safe or out by a step at first base."

ASK any coach what element is of most consequence in sport and almost without exception the reply is one word. Time! All around the world of sport there is one cry. The demand for speed—more speed!

Not so much the kind of speed that brings football fans to their feet in the bleachers when a fleet back goes tearing over the yard lines in a spectacular run. Nor the kind that holds a crowd breathless as a fast forward dribbles and pivots his way into scoring position on the basketball floor. These are perfectly obvious manifestations of speed which any spectator can thrill to and applaud.

There is another kind of speed to which untrained eyes are blind. The type of speed that takes advantage of every opportunity to save a precious fractional part of a second. Picking up a step—the saving in time that is the difference between the right and the wrong way of doing a thing. Baseball offers many opportunities for the practical application of this subtler sort of speed.

Last half of the ninth, no men on, no outs. Fastest man on the team leading off at bat. On the first pitch he lays down a perfect bunt along the third base line and streaks for first. The third baseman tearing in for the ball while the crowd goes wild. Speed! Here is an obvious contest between the third baseman and the batsman flying to first—whether the throw is going to be faster than the runner. The crowd is watching those two men in the play—the runner and the third baseman.

Only in the event that he drops the ball will the first baseman be likely to attract the attention of the spectators, because his part in the drama of speed is a minor one, a role little observed by the crowd. Standing still, waiting for the throw, what chance has he to speed up the play? Let us see.

If he has been well coached he plays the inside corner of the bag, feet fairly far apart, one toe to the sack. Poised, prepared to go in any direction in the event of a bad throw, ready to lean out into the ball, to get it in his hands that split second quicker than he would if he were not trained in the time-saving details of his position.

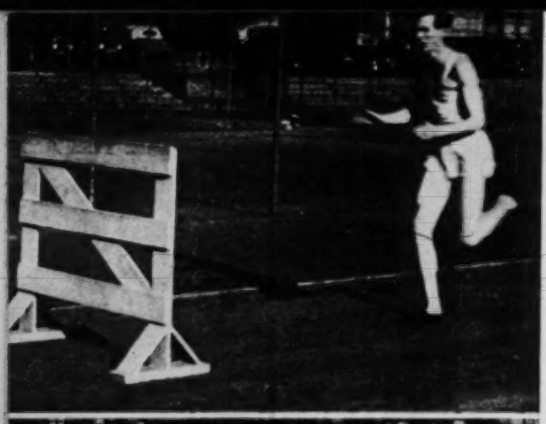
The man who coached him knew how many runners are safe or out by a step at first base. So he taught him to pick up a step by standing on the inside corner of first and leaning a step into the throw. Is this a lesser kind of speed than that displayed by the runner or the player making the throw? Or just less conspicuous?

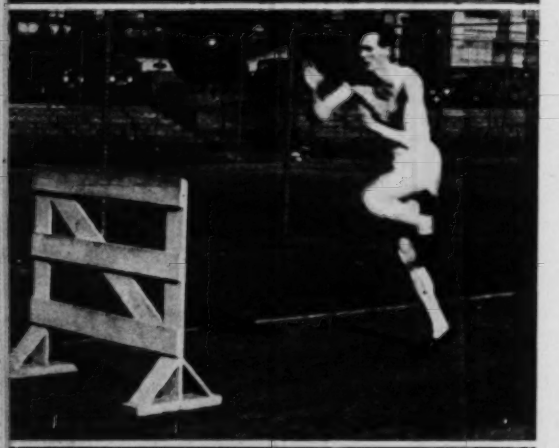
Let us imagine that there had been a runner on second. With the throw to first he had started for third. Then the first baseman would have been really noticed by the fans. A fast throw to third. A poor throw or a good one, fast or not fast enough, as far as the fans were concerned, depending on whether the runner was out or not. Any way to pick up a step here that the crowd wouldn't notice? Most certainly.

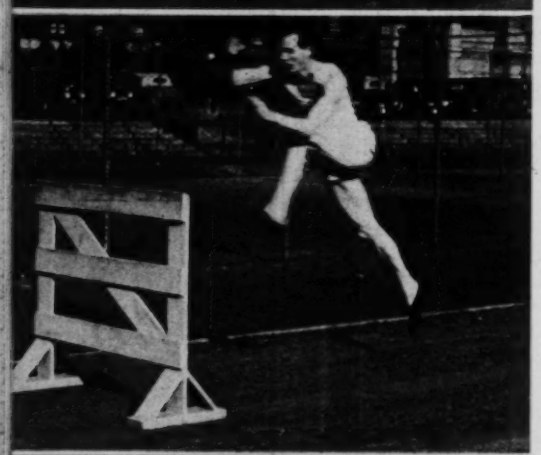
Let us assume that this well-coached first baseman was left-handed. At the time he made the catch he would have stretched out to meet the throw, his *left* foot back, toe to the inside corner of the sack. He would have taken the ball slightly to his left and the momentum of the ball would have carried his arm back. With the impact of the ball he would have stepped forward with his left foot, completing the step as the ball left his hand on the way to third. The catch left him in perfect position for a throw, he had only to step forward to get the ball away with the weight of his body behind it. A fine point in baseball speed!

The same coach who taught the left-hander would have shown a right-hander how to keep his right foot back and take the throw to his right. No lost motion here, no turning around to get in position for a throw. When the ball is caught it is in position to throw anywhere, hard and fast.

A baseman with the wrong foot back takes a step *before* his throw instead of *with* it. Because he is out of natural position for a throw, he must turn to acquire that position. Such a throw is made from a stationary position without the added speed given by a body follow-through. A twice-slow throw. Slower to get away and slower traveling than one correctly made. The coach can demonstrate this difference most strikingly when the baseman must pivot for a throw in a different direction, [Concluded on page 36]







PERCY BEARD, World's Record Holder

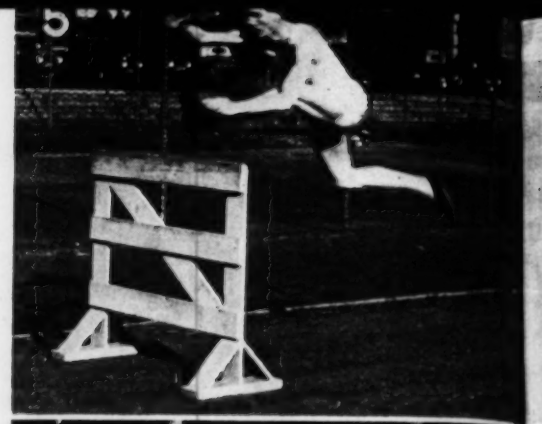
SMOOTHNESS and effortlessness are the words that best describe the high-hurdling action of Percy Beard, the Alabama mathematics instructor, who is the American high-hurdle champion and World's record holder at 14.2 seconds over the 120-yard route.

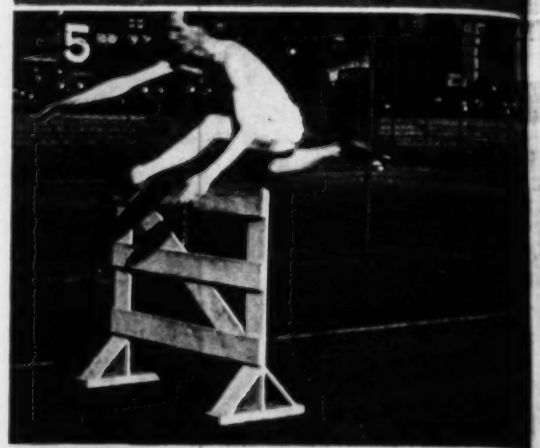
With the recommendation of the Track and Field Rules Committee for 39-inch hurdles, instead of 42 inches, for the high school high hurdle event (see opposite page) there will undoubtedly be a greater interest on the part of high school coaches and hurdlers in this event.

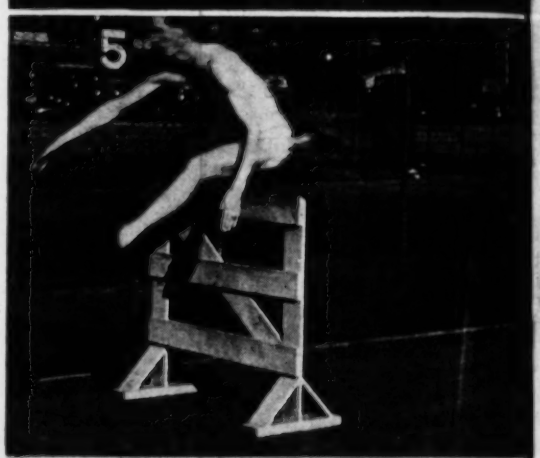
The points of good high-hurdling form observed by the outstanding men in the event should be the objectives of high school hurdlers in training and practicing for the three-inch lower high hurdle.

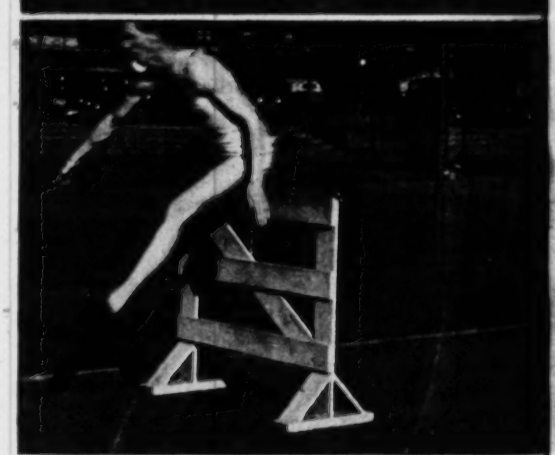
In the accompanying strips from a moving picture of Percy Beard by Owen Reed, the points in this champion's form are graphically shown. These may be cited as follows:

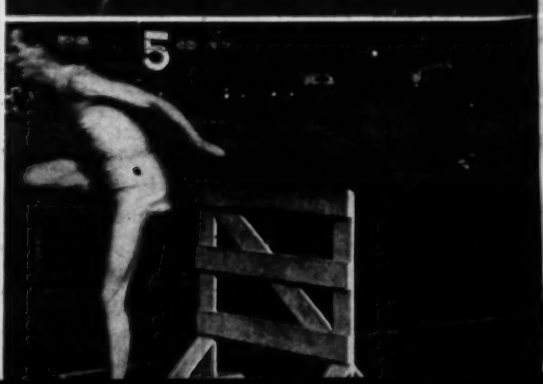
His lead leg drives straight ahead (no circular or sideward swing) . . . the knee of the lead leg is kept bent so that the maximum flexibility of this member is maintained to facilitate the "step" down after the hurdle is cleared . . . this gets him down to the ground as quickly as possible . . . the rear leg is brought forward with the knee well up (so as to assist the body bend or "buck") and on a line fairly parallel with the ground, and not dropped until it is well out in front . . . the last frame of the pictures shows the rear-leg knee still up as Beard lands on his lead foot . . . Beard's head is dipped, to assist the body bend and maintain the forward lean of the body which is indispensable to a successful continuance of the sprinting stride on the return to the ground . . . getting the lead leg down quickly ("step" down) also contributes to good body lean for the resumption of the sprint, and keeps that leg well behind the torso as the one-foot landing is made . . . Beard's arm-action is not as accentuated as in the case of most high hurdlers . . . In bringing his rear (right) leg forward his right arm is late (according to orthodoxy) in going back . . . But there is certainly no chance of that arm striking the rear leg as it comes forward.











New Books on the Sportshelf

Lower high hurdles

TRACK AND FIELD OFFICIAL HANDBOOK, 1935. *National Collegiate Athletic Association. New York: American Sports Publishing Co. Pp. 110. 25 cents.*

AS the result of experiments conducted under the direction of E. A. Thomas, representative of the National Federation of State High School Athletic Associations on the N.C.A.A. Track and Field Rules Committee, the 1935 Handbook, Rule 29 (Hurdles) recommends that high schools use 39-inch high hurdles instead of the 42-inch hurdles used heretofore. The present height of the low hurdles, 2 feet 6 inches, is retained for high schools, but the length of the race has been shortened to 200 yards. The distance from the starting line to the first hurdle becomes 18 yards instead of 20 yards; and the distance between each flight of hurdles is similarly reduced two yards. The distance from the last of the ten hurdles to the finish line remains at 20 yards.

As stated, these new heights and distances for high school hurdle events are *recommended,* rather than *prescribed.* By the time the 1936 Handbook appears Mr. Thomas expects to have these changes incorporated in the official rules. A number of state high school athletic associations have already made the recommendations official for competition within the state.

"There is no doubt," Mr. Thomas writes us, "that the high hurdle used in colleges is too high for the average high school boy, and it has cut down on the coach's opportunity to develop hurdlers among his younger boys. The 39-inch hurdle will be low enough for the average boy to clear and at the same time high enough to develop hurdling technique."

Other rules changes affecting high schools, as well as colleges, concern the procedure for qualifying, the order of competition, and the definition of a high jump. As summarized by the Handbook:

Qualifying—"In the throwing events and the broad jump four preliminary and four final trials are allowed in one-session meets. In two-session meets there are to be four preliminary, two semi-final and four final trials. The semi-final round may be held in either session or omitted altogether, at the discretion of the Games Committee.

Order of competition.—"In the throwing events and the broad jump trials are to be taken in 'alternating pairs' except in the semi-final and final rounds of two-session meets, when they are to be taken in 'flights'."

"Hey, Munhall, this is the low-hurdle race!"

From *The New Yorker* with permission.

Definition of a high jump—"The definition of a legal jump has been modified to conform to the new rule of the International Amateur Athletic Federation, which legalizes all jumps made from a one-foot take-off." The present rule simply reads: "A fair jump is one in which the competitor jumps from one foot." There is no longer any confusion as to which part of the body goes over the bar first. It now makes no difference. Diving, somersaulting and hypnotic floating are permissible, if they originate off one foot.

Text for high school students

THE GREEK LIVES AGAIN. *By Robert E. Lindwall and Gordon C. Winder. Manitowoc, Wisconsin: 1934, pp 90. $1.*

THE text is intended as a manual on health and physical education for use by the junior and senior high school student. This is one of few attempts made to reach the student directly. The authors divide the material into five sections: I. Dedication and Acknowledgments; II. The Greek Lives Again; III. Education Through the Physical; IV. Rules and Suggestions for Physical Education Activities; V. Records and Guidance in Physical and Health Education.

The "Greeks Live Again" in that the educators of today are beginning to realize the importance of a *"sound mind in a sound body."* This is leading to a re-emphasis on the motor program which is carrying us into a new era of education, where the "Greek *will* live again." This, it seems, is the idealistic state in thinking of the "good old days," and one wonders whether the "good old days" were so good after all.

The values of courses taken are measurable in terms of results obtained. The values in a course of physical education are obvious and measurable, according to the authors. These measures must be relative in terms of our environment and our students. "Education Through the Physical," or a program of physical and health education will *tend* to do certain things, such as build body strength, build skills, methods of behaviour, hygienic habits, etc.

Section IV is devoted to rules and suggestions for various activities. The text is to be used parallel to the motor activities program. In order to save time in explaining game fundamentals, the student is assigned, as a reading requirement, a section which explains the rules of the game to be played at a specific time. The activities are divided into three types; first, athletics such as touch football, speedball, horseshoe, bowling, soccer and hockey; second, achievement test; and third, miscellaneous activities, some of which are hiking, hobbies, artificial respiration, bait casting, and health-building

exercises.

As the text is small, it is impossible to list very many activities and it seems as if an attempt was made to list varied, rather than many activities. It would have been more appropriate to list such activities as punting and drop-kicking under athletics, and bowling under miscellaneous, rather than as listed, in the reverse order.

The manual closes with a section of Records and Guidance in Health and Physical Education. This section contains suggested forms for the student, for the keeping of records of progress made. Carry-over activities are listed, as are some of their values. The health data includes information on ringworm, luncheon suggestions and a health code. More material could have been given on health problems. In all, the text should prove of interest to the student.

HYMAN KRAKOWER

Girls' handbook

THE ATHLETIC HANDBOOK, 1934-35, *edited by the Women's Rules and Editorial Committee of the Women's Athletic Section of the American Physical Education Association. 160 pp. with detachable charts. American Sports Publishing Co. 25 cents.*

HERE is a mine of information, suggestions, rules and regulations, on games and physical contests suitable for girls, meeting the high standards of Women's Athletic Section of the American Physical Education Association. There are five sections to the book this year: Section I, Athletic Games; Section II, Individual Sports—Archery, Golf, Tennis; Section III, Volley Ball; Section IV, Intramural Tournaments; Section V, Track and Field. Section II is the new section—on individual sports. Of this addition Miss Hussey, editor of the Handbook, writes in the foreword: "With the general social trend in the direction of more and more free time for the people, there is need for emphasis on those satisfying activities which can be engaged in alone or with one or more others. Archery, Golf and Tennis, being single and dual games, meet this demand; hence a new committee has undertaken the task of preparing rules for these activities."

The detachable charts, or supplements, inserted in the front and back of the book, present (1) volley ball rules, (2) table of track and field information. Included in this latter chart are the national high school and national collegiate track and field records for girls. They are called "maximum performances," rather than "records," for the ladies, officially, have a pronounced aversion to championships, record-smashing, and that sort of thing.

If there is a better bargain of its kind anywhere than is offered in this handbook for twenty-five cents, we have not heard about it. The lady athletic editors have rung the bell again.

GIRLS' BASKETBALL BOOK

The first book on girls' basketball since the opening-up of the game by the rules changes of two years ago is off the press. It is *Modern Basketball for Girls,* a 54-page handbook in paper cover, with the text in outline form by Elizabeth Yeend Meyers and Wilhelmine E. Meissner of the Committee on Women's Basketball of the American Physical Education Association. Features of this handbook are the continuous-action pictures of all the fundamentals of the game reproduced from a slow-motion film made expressly for this book; and the diagrams of forty practice drills and play situations. The price of the book is one dollar, postpaid. The publisher is Scholastic Coach Bookshop, 250 East 43rd street, New York City.

Girls' Track and Field Maximum Performances

This table adapted from chart in "The Athletic Handbook, 1934-35," reviewed on this page.

	COLLEGE	SECONDARY SCHOOL
50-YARD DASH	5.9s. Harriet Holden Michigan State College, 1925	6 1/5s. Mildred Gilmore Arcadia, Mo., H. S., 1925
75-YARD DASH	8s. Vera Lammott Earlham College, 1927	9 3/5s. Margaret Callahan Classical H. S., Lynn, Mass., 1925
100-YARD DASH	12 1/5s. Grace Willis Winthrop College, 1927	10 4/5s. Florence Chadwall Classical H. S., Lynn, Mass., 1925
50-YARD HURDLES (*2-ft. hurdles*)	NO COLLEGE RECORD AT THIS DISTANCE	7 2/5s. Lorraine Hogan Winthrow H. S., Cincinnati, O., 1927
60-YARD HURDLES (*2-ft. hurdles*)	8 4/5s. Pearle Young College of William & Mary, 1930	NO SCHOOL RECORD AT THIS DISTANCE
60-YARD HURDLES (*2 ft. 6 in. hurdles*)	9.3s. Vera Lammott Earlham College, 1927	NO SCHOOL RECORD AT THIS DISTANCE
65-YARD HURDLES (*2-ft. hurdles*)	9 2/5s. Elsetta Gilchrist Sweet Briar College, 1926	11s. E. Blackledge Tucson, Ariz., H. S., 1928
RUNNING BROAD JUMP	17ft.2in. Pearl Young College of William & Mary, 1931	16ft. Ruth Lyman Howe-Marot School, Thompson, Conn., 1929
RUNNING HOP, STEP & JUMP	34ft.6in. Florence Eggleston Lake Erie College, 1932	33ft.7in. D. Haldeman Tucson, Ariz., H. S., 1928
STANDING BROAD JUMP	8ft.8 1/2in. M. Leiper, Vassar, 1932 Florence Eggleston, Lake Erie College	8ft.1in. Mary E. Young Holland Hall, 1929
RUNNING HIGH JUMP	4ft.11 3/8in. Pearl Young College of William & Mary, 1929	4ft.9 1/2in. Page Brettner Claudia Schwab Carol Jenal St. Joseph Academy, St. Paul, Minn., 1933
DISCUS THROW	100ft.2in. Borghild Prior Randolph-Macon Women's College, 1926	87ft.10in. Katharine Wilder Briarcliff School (N.Y.) 1931
JAVELIN THROW	123ft.8in. Nan Gindele Northwestern Univ., 1933	103ft.10in. Gertrude Stelling Puyallup, Wash., H. S.
SHOT PUT (*8-lb. shot*)	33ft.4 1/2in. Martha Shirkey Western Reserve, 1920	35ft.7 1/2in. Ruth Osborne Shelbina, Mo., H. S., 1932
BASEBALL THROW	245ft.7in. Margaret Hodgins Sargent School, Cambridge, Mass.	248ft.10in. Ruth Osborne Shelbina, Mo., H. S., 1932
BASKETBALL THROW	100ft.10in. Hazel Fairbanks Cortland, N. Y., Normal School	90ft.6in. Carolyn Case Amityville, N. Y., H. S.

BASEBALL COACHING FROM BIG LEAGUERS

For this, the second of the series written expressly for Scholastic Coach by big leaguers, Mr. Henry P. Edwards, manager of the American League Service Bureau, has chosen batting as the topic, and obtained the opinions of three outstanding batsmen—Rogers Hornsby, manager of the St. Louis Browns; Al Simmons, of the Chicago White Sox; and Leon Goslin, of the Detroit Tigers. Mr. Hornsby has a lifetime major league batting average of .359, including seven seasons during which he made 200 hits or more; Mr. Simmons holds the major league record in driving in 100 or more runs a season for eleven consecutive years, and possesses a lifetime batting average of .354. Mr. Goslin has batted .323 during his long career. It is with pleasure that the American League presents to the high schools of the United States batting tips by these distinguished players.

WILL HARRIDGE
President, American League

By Rogers Hornsby

Manager, St. Louis Browns

THERE is no magic about batting. There is skill, of course, but no magic. The skill can be acquired by the average fellow who has a certain physical courage, or who can develop it, by following simple rules. It is necessary to mention the requirement of physical courage, or, to be more specific, "batting" courage, for, while it is not a skill in the motor sense, it is a quality without which a player cannot become a good batter. This type of courage is not necessarily "inborn"; it can be developed in youngsters, as many a high school coach knows through his success in getting his pupils to overcome fears of this sort. One of the greatest satisfactions in the teaching of high school athletics must come to the coach on those occasions when, through long, patient effort and sympathic understanding, he sees a pupil overcome a violent fear of, for instance, water or a fast pitched ball; and to finally see him stand on the edge of the pool and dive in, or stand up to the plate and put his whole body and mind to the task of watching the ball come down the alley, and then do right by it.

To depart from the psychic, let us discuss a few of the points which might well apply to high school batters as well as to all others who have room for improvement. First, the grip on the bat. A common error is to grip the bat too tightly. I have seen in professional baseball young fellows just up from the minor leagues who gripped their bats as though they were determined to squeeze the wood to a pulp. When the player grips the handle of his bat so tightly, he tightens up the muscles of wrists and forearms and destroys the flexibility which is so essential to the timing of the swing and whip of the wrist at the moment of contact with the ball. This flexibility also facilitates the movement of the follow-through, an important feature of the swing. It is the follow-through that adds length to hits; if the bat is stopped short, the batted balls will lack sting and length.

Above—Foxx: he keeps his feet rather close together when he steps into the pitch.

Above—Hornsby: he takes a long stride backward, then comes forward with his whole body behind the blow.

Top center—Simmons: fairly long stride and a full follow-through. Bottom center—Gehringer: he uses a short bat and a long stride.

Next, I would pay strict attention to the stance at the plate. While I have seen a few players who could crowd the plate and obtain results, the majority of good hitters stand fairly well away. The front foot should be used to guide the batsman, the rear foot to provide the power and pivot.

A good batter never keeps his bat on his shoulder. If he does, he will be forced to make three separate movements before he swings: he would have to come forward with his bat, then poise it and, finally, swing. By holding the bat free of the shoulder, he is required to make only one motion, and is in a better position to hit any kind of pitch.

The batsman never should try to outguess the pitcher, for the odds are against him; the ratio against him being 1 to all the variety of offerings in the pitcher's repertory. The batter should stand up there with his bat free; he should not be too close to the plate—I would advise a position in the rear of the batter's box, although I know that certain batters have acquired successful results by standing well to the front of the box, but only against certain pitchers. They did so for the purpose of hitting a curve ball before it broke.

By Al Simmons

Chicago White Sox

THE coach of young players has to be on the watch for a certain number of players on his squad who delight in using bats much too heavy for them. There is a fascination and a challenge about a heavy bat which is normal enough, in the light of adolescent psychology. The coach must convince the youngster that he will hit much better with a bat which he can control more easily. If the youngster is one of those rare individuals who can safely hit one out of three times at bat, using a 56-ounce weapon after the manner of Babe Ruth, then he becomes the exception that proves the rule. Even at that, this exceptional youngster should be encouraged to give a lighter bat a fair trial. If it does not serve him so well as his heavy favorite, then there is no question but that he should continue using the bigger bat. What the young player should do is to experiment until he finds the bat best adapted to his physical assets. [Continued on page 22]

THREE CHANGES IN N.C.A.A. FOOTBALL RULES

Passes from line of scrimmage still out

THE Football Rules Committee of the National Collegiate Athletic Association met last month at Absecon, N. J., and made only three changes of any consequence in the rules for the 1935 season. The proposed forward-pass rule allowing passes to be thrown from any point behind the line of scrimmage, which would have brought the N.C.A.A. rules into harmony on all major points with the rules of the National Federation of State High School Athletic Associations,* was not among the changes made by the collegiate body.

William S. Langford, secretary of the committee, gave the following summary of the three most consequential changes:

1. "A new provision was added to the dead-ball rule, making it permissible for a runner who is on his feet even though held by an opponent to run, pass or kick until the whistle is blown."

2. "The rule governing interchanging of linemen and backs was clarified by defining the positions of the center, guards and tackles as those occupied by those players when they originally entered the game, with the further provision that the field captain must designate upon request of the officials which players are the center, guards and tackles of his team."

3. "An exception was made to the general rule whereby fouls committed by both teams offset each other. This exception provides that, should a punted ball be illegally touched (downed) and then there be a personal foul by opponents, the captain of the kicking team may refuse the offsetting penalty. In such case the ball would belong to the receiving team at the spot where it was illegally touched (downed)."

Regarding the first change (No. 1 above) Mr. Langford said: "This provision will give a runner who has been tackled but not thrown a somewhat greater opportunity to break away or make a pass which will further encourage the open game."

The National Federation rule covering dead-balls will not be changed to correspond to the N.C.A.A. new ruling, for it is the opinion of the Federation Rules Committee that the change would cause tacklers rushing the forward passer to be extreme in their vigor in making certain that he goes down, thus mitigating against the safety that has been added to the game during the past several years.

The N.C.A.A. rule, as amended, will permit, for instance, a forward-pass to be thrown even though the passer is in the grasp of an opponent as long as the passer is on his feet. The referee is to withold his whistle until "any portion of his [the player in possession of the ball] person except his hands or feet touches the ground."

On the points covered in the other two N.C.A.A. changes (2 and 3) the National Federation rules are in agreement.

Regarding the third change (offsetting fouls), the following pertinent comment was made by J. P. Abramson in the *New York Herald-Tribune*:

"This provision is aimed at some coaches who have taken advantage of a loophole in the rule. In simpler language, the situation is this: Suppose a kicker gets off a perfect punt into the enemy's coffin corner. The offensive end downs the ball. To escape this predicament the defense commits a deliberate foul. Under the 1934 rules the officials had no recourse but to bring the ball back. Under the new provision the team kicking may now refuse the penalty against the defensive team, keeping the ball in the coffin corner."

*The high schools in nine states have officially adopted the National Federation rules in whole. They are: Alabama, Illinois, Iowa, Kansas, Minnesota, Missouri, North Dakota, South Dakota and Wisconsin. A number of other states use the forward-pass feature of the National Federation rules; and, through their state athletic associations, encourage the use of the National Federation rule book, without making its use mandatory.

The National Collegiate Athletic Association Football Rules Committee and Advisors during their annual meeting at Absecon, N. J. Front row, left to right: Noble Kizer, Purdue; Dana Bible, Nebraska; Walter Okeson, chairman of the committee, Lehigh; L. H. Mahoney, Denver; Fielding Yost, Michigan; W. G. Crowell, Narberth, Pa.; Amos Alonzo Stagg, College of the Pacific. Second row: Herb Dana, Oakland, Calif.; H. J. Stegeman, Georgia; D. O. McLaughry, Brown; Ray Morrison, Southern Methodist; W. O. Hunter, Southern California; A. W. Palmer, Haverford. Third row: W. S. Langford, secretary of the committee, New York; Lou Little, Columbia; William Bingham, Harvard; A. R. Hutchens, Florida; Lew Palmer, New York.

HIGH SCHOOL MEN MEET OKESON

On invitation of the National Federation of State High School Athletic Associations, Walter R. Okeson, chairman of the N.C.A.A. Football Rules Committee, met with the executive committee of the Federation at its annual meeting in Atlantic City last month. The session afforded an opportunity for an exchange of views between Mr. Okeson and National Federation officials resulting in a better understanding of motives and of the individual needs of college football players as a group and high school football players as a group.

The meeting between Mr. Okeson and the high school men will probably result in a more cordial relationship between the National Federation Football Rules Committee and the N.C.A.A. Football Rules Committee, each of whom issue separate sets of rules. One outcome of the meeting may develop an arrangement for overlapping committee memberships to prevent the two football codes from getting too far apart.

NORTHEASTERN UNIVERSITY
ANNUAL COACHING SCHOOL

JUNE 24 **BOSTON, MASS.** **JUNE 29**

Again — AMERICA'S OUTSTANDING COACHES

FRANK THOMAS
University of Alabama

"JOCK" SUTHERLAND
University of Pittsburgh

ANDY KERR
Colgate University

DICK HARLOW
Harvard University

No expense has been spared to bring to the 1935 Northeastern Coaching School the country's outstanding coaches. Already newspapers have said, "Undoubtedly the country's finest coaching school". Notice the line-up of instructors: — **THOMAS,** coach of the Rose Bowl Champions — **SUTHERLAND,** famous coach of the Pitt Panthers — **KERR,** leading exponent of the lateral pass — **HARLOW,** undefeated at Western Maryland, now head coach at Harvard — **ANDERSON,** Rockne said of him, "Anderson is the finest instructor of Notre Dame line play" — **McKENNEY,** builder of defense against all systems — **HINKLE,** coach of the famous Butler Five whose basketball teams have been State, Sectional, and National Champions — **DOC KONTOFF,** whose lectures on Care of Injuries and Training were so well received last year that they are being repeated at the request of coaches.

FOOTBALL — *Notre Dame—Single Wing—Double Wing—Warner—Deception—Defense —Scouting—Line Play—Lateral Pass—Passing—Kicking*—**MOVIES** *of the Alabama Rose Bowl Victory*—**TRAINING—CARE OF INJURIES—BASKETBALL**—*Zone Defense—Man to Man Defense—Bucket Play—Actual Floor Demonstrations by Players*—**ENTERTAINMENT** — *Big Mid-Week Smoker* — **ARRANGEMENTS MADE TO DISCUSS YOUR PROBLEMS INDIVIDUALLY WITH THESE FAMOUS COACHES.**

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Northeastern University

Prof. E. S. Parsons, Director
Northeastern University Coaching School
Boston, Mass.

Please send me full particulars of the Annual Northeastern Coaching School.

Name _____

Address _____

City & State _____

JUNE 24th TO JUNE 29th (Inclusive)

Harry Kipke accepts a wriggling token of Good Luck at the 1934 Texas Tech Coaching School. The following season Michigan won but one game. Will Kipke, a football virtuoso of the first rank, be called to as many coaching schools in 1935 as he was in 1934?

TO SIT AT THE FEET

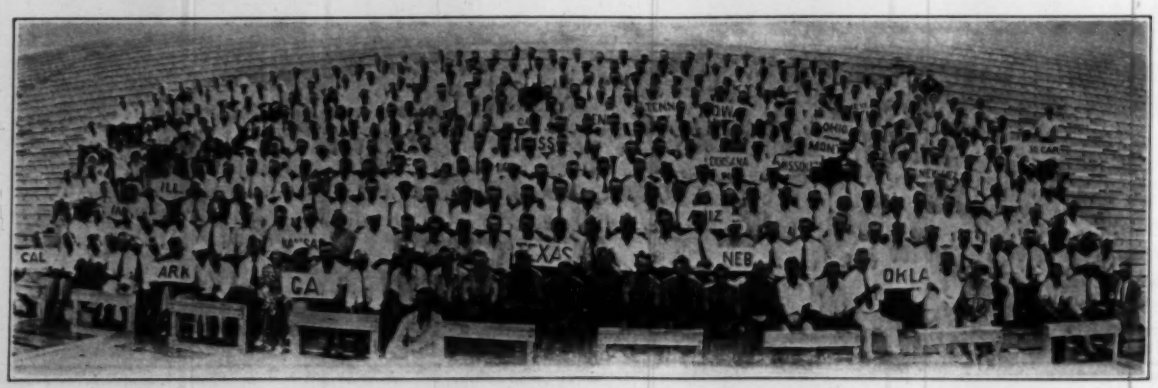
By Charles H.

Mr. Yocum, manager of athle Dickinson & Co., Rutherford, N the American, if not the world' school attendance. During the has attended seventy-eight of record is fourteen (during 193 ered 5,200 miles but reached widely scattered parts of the tively light season for him.

TO SIT AT THE FEET OF THE GREAT. Thus do thousands of coaches, with the first flush of spring, plan to spend part of their summer vacation. Not at the feet of the academic great—oh no!—but at the feet of the coaching great in football, basketball, baseball and track (but mostly football). What matter if a year or so later the idol is found to have feet of clay! He *was* on top, and, as such, his words were pearls of wisdom, his pet plays the open sesame to success.

It may not be logical, but a coach-instructor's value as a drawing card for a coaching school is in proportion to the number and kind of victories his team turned in during the previous season or two. His ability to teach what he knows and his personality are secondary considerations. Yet, they are the factors that either make or break the coach as a professor at a coaching school. But first he must have had an undefeated season or one very close to it, and, generally speaking, he must keep turning out winners over the years if he is to enjoy a "long run" as a coaching school instructor.

The short-term coaching school, as differentiated from the regular credit-bearing, formal summer sessions of four to eight weeks duration, is a comparatively recent development. The coaching school got its real lease on life in the early 1920's through Knute Rockne and his basketball friend, Walter C. Meanwell of Wisconsin; it skyrocketed with Warner, Allen, Zuppke and Hinkle, and has managed to retain its popularity through the depression, each year adding to its teaching roster the coaches who, in the previous season, developed teams of so-called "national championship" calibre. These newly risen coaching stars on the football firmament are in popular demand because it is generally believed that they have something new and different to say about the game. And usually they have. Some of them say it, and some of them do not—the latter preferring not to disclose what they regard as the secret of their success. The men who attend coaching schools are quick to sense this unwillingness on the part of

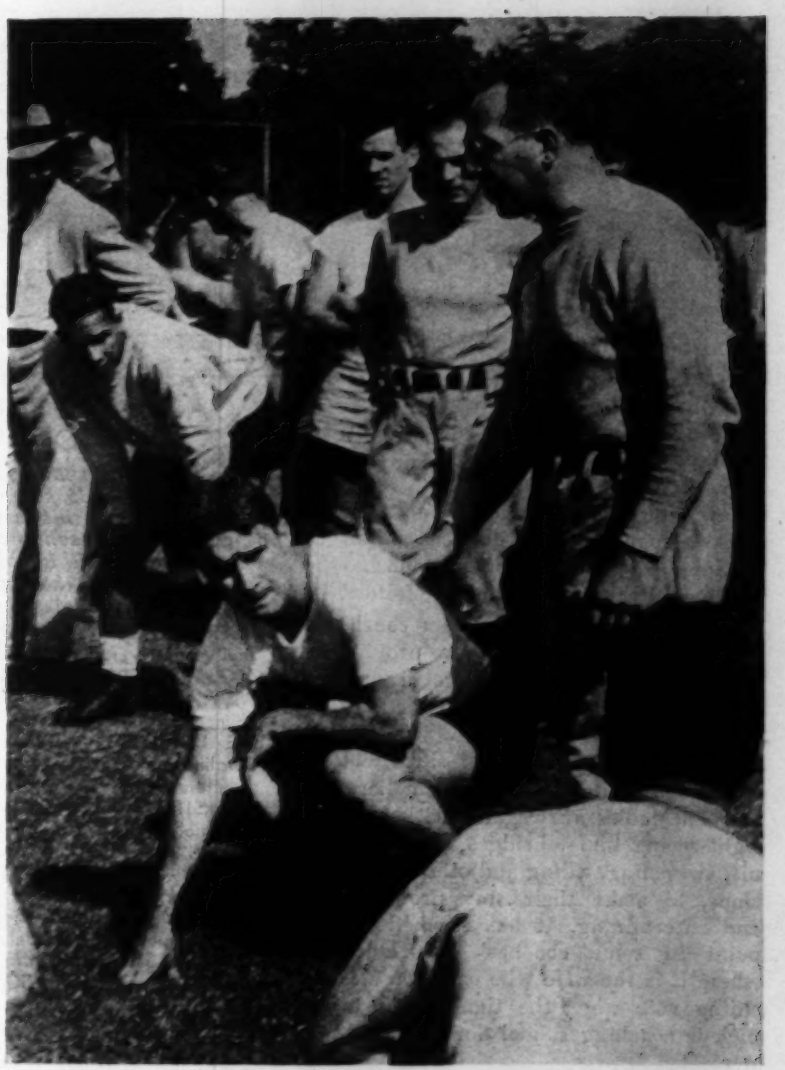


Two of the largest coachin country: On the left, the T at Lubbock, Texas, which h fifth season for the coming right, the Northwestern U Evanston, Ill., which will con nual session this summer.

FEET OF THE GREAT

rles H. Yocum

ger of athletics sales for Becton, therford, N. J., probably holds the world's record for coaching During the past eight years he y-eight of them. His one-season during 1932). Last year he cov- reached only eight schools—in rts of the country—a compara- or him.



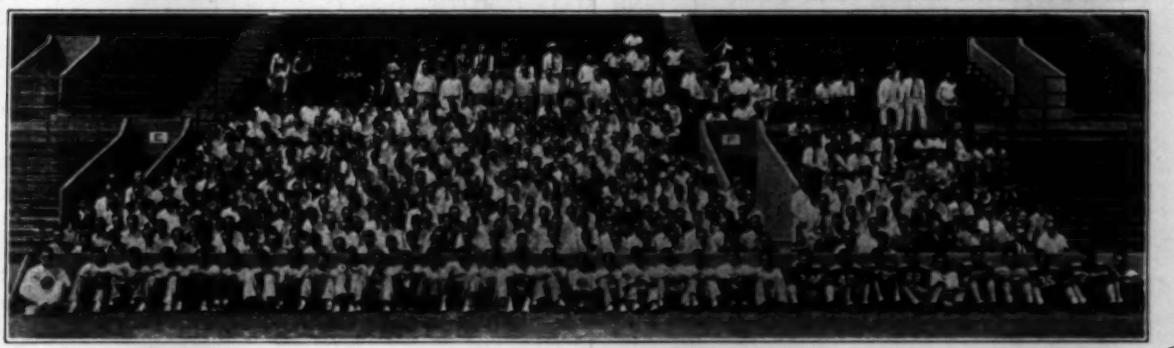
Lou Little of Columbia at his own coaching school in New York, one of the eleven at which he taught last year, following the victory of his team in the Rose Bowl game. Overnight he became the most sought-after instructor in the game.

some of the professors to give freely of their knowledge, and the word soon gets around that so-and-so is the kind who "holds back." When such word gets around about a coach-instructor, it spells the finish of his popularity, and it is the wise coaching school director who avoids signing up these secretive gentlemen.

There are types of coaching schools to suit every taste. There are large ones, small ones, short ones, long ones, football ones, basketball ones, all-sports ones, academic-credit-granting ones. One week a few summers ago the writer attended a school with an enrollment of eleven, and the following week he was at a school where more than 400 were enrolled. The size of the teaching staffs range from one instructor to fifteen; and the courses range from one (where the school gives a single sport, such as football or basketball) to schools where seven or eight sports are covered, in addition to courses on the care and treatment of athletic injuries and the administration of athletics.

Some schools are held as a part of regular summer sessions so that the student may get academic credit for his work; others are short courses held in the better known colleges and universities; still others are connected with camps where one can combine an out-of-doors vacation with an opportunity to study football, basketball and other sports.

For instance, take any one of the two or three outstanding specializing type of coaching schools where several of the past year's top-of-the-heap coaches are on the "faculty." The matriculating coach comes to town and is accorded every courtesy, and every detail for his comfort, worked out long before the school starts, is arranged. For a modest sum the coach and his wife, if she comes along, are room- and-boarded in comfortable style for the period of the school. The coaching course starts at eight o'clock in the morning and usually runs without interruption, save for a short luncheon period, to nightfall. The work is divided between classroom and demonstration field. Sometimes the instructor will have a small squad of his own players, or players from a nearby



st coaching schools in the left, the Texas Tech school, s, which has announced its he coming summer. On the western University school, ch will conduct its ninth an- ummer.

THE LARGEST COACHING SCHOOL IN THE EAST: THE NORTHEASTERN UNIVERSITY SCHOOL AT BOSTON

school, assist in the demonstration.

The leading teacher-coaches welcome any discussion of their pet system, as they find that they can learn a few things from the men who attend these schools, and are quick to admit it. Some detail that a young coach has discovered often helps the big fellow.

Every successful short-term coaching school finds that it must provide for some diversion if it is to draw a large class. This is accomplished by arranging free tickets to baseball games, guest cards to golf clubs and tennis courts, dances, rodeos, smokers, etc. The ladies are regaled with teas, sight-seeing tours, bridges, golf, tennis, swimming, riding and other diversions, to make their stay profitable and entertaining. It has reached the point in some coaches' households where it is the wife who casts the deciding vote when the time comes to pick a coaching school for the summer.

At the university, or long-term summer schools, there is less attention paid by the school to the social life of the students. While many social functions are sponsored by various groups within the school, they are scattered over a longer period of time, and carry considerable less weight with the students than do the social functions at the short-term specializing coaching school. At the long-term schools the coach goes for work and work is what he gets. A candidate for a degree, he must fulfill certain academic requirements, which demand some concentrated study outside the classroom. The football, basketball and other athletic courses at these schools are usually under the teaching of that school's regular coaching staff. These schools are thorough, and offer the student coach something that he may need if he is to improve his station in the profession of physical education. Some coaches attend both types of school—a one-week coaching school, and a six-weeks summer matriculation for a degree, majoring in coaching and physical education.

The coaching schools have been, I believe, a major influence in placing football and basketball on their present high levels of tactical excellence. While most young men entering the profession of coaching and physical education have been players, and thus have absorbed a considerable knowledge of the game, they usually know very little of teaching techniques. Neither do they know how to plan defenses against other teams, as this had all been done for them. Coaching school teaches men how to *coach*, and gives them an opportunity to study thoroughly the strength and weakness of every recognized system of football and basketball.

With the improvement in methods of playing the game, football, especially, comes greater safety to the game. A coach with an advanced knowledge of skills and tactics is in a much better position to prescribe safety measures for his players than a coach not so well informed, provided he has the necessary knowledge of anatomy and body mechanics.

The coaching school is here to stay. There was a time when I felt it was but a passing fad. But it has become a necessary clinic and as such will continue. Perhaps its set-up will change as the fancy of the attending coach dictates; but, as a rose with any other name has the same odor, so will this summer flower. Perhaps the entertainment factors will change, and the method of presentation, but the gods of the football world will be there—for a price—and the coaches of Siwash and Huckleberry Hollow will be there to learn more of the Horsemen's shift, the single, double and triple wings, the short or long punt, the hunch-back and sway-back systems, whichever was in style last fall. They have to, because they must know more than the Sunday Quarterback and Downtown Coaches Association, if they are to retain their professional prestige. That is to say, the coach must keep in touch with what is going on in his work throughout the country. The more he knows and the sharper he keeps his eagerness to learn, the better chance he has of serving his school to the fullest of his talents.

COACHING SCHOOL DIRECTORY

The following schools had announced their 1935 summer sessions at the time this issue went to press. As more schools are announced they will be added to the Directory in the April and May issues of Scholastic Coach:

BUTLER UNIVERSITY — Indianapolis, Ind. Aug. 12-17. Paul D. Hinkle.

COLGATE UNIVERSITY — Hamilton, N. Y. One week. Dates to be announced. William A. Reid, director.

DUKE UNIVERSITY — Durham, North Carolina. July 15-20. Wallace Wade, director. See advertisement page 22.

UNIVERSITY OF ILLINOIS — Urbana, Ill. June 17-July 27. Seward C. Staley.

INDIANA UNIVERSITY—Bloomington, Indiana. June 19-July 16. Z. G. Clevenger, director.

UNIVERSITY OF IOWA—Iowa City, Iowa. June 10-July 18; July 22-Aug. 22. O. M. Solem, director.

KANSAS STATE HIGH SCHOOL—Topeka, Kansas. E. A. Thomas, director, 315 West 10th street. Aug. 12-23.

LIEB-MEANWELL COACHING SCHOOL—Pio Nono High School, Milwaukee, Wisconsin. Aug. 26-31. E. T. Dermody, director.

MISSISSIPPI STATE COLLEGE—State College, Miss. Dates to be announced. R. P. Patty, business manager.

UNIVERSITY OF MISSOURI—Columbia, Missouri. June 10-Aug. 2. C. L. Brewer, director.

UNIVERSITY OF NORTH CAROLINA Chapel Hill, North Carolina. Aug. 19-31. R. A. Fetzer, director.

NORTHEASTERN UNIVERSITY — Boston, Mass. June 24-29. Edward S. Parsons, director. See advertisement on page 17.

NORTH HIGH SCHOOL—Columbus, Ohio. Aug. 26-31. Arthur C. Jones, director.

NORTHWESTERN UNIVERSITY—Evanston, Illinois. Aug. 12-24. K. L. Wilson, director.

OHIO UNIVERSITY — Athens, Ohio, June 10-July 6. O. C. Bird, director.

PENN STATE COLLEGE—State College, Pennsylvania. July 22-Aug. 10.

SPRINGFIELD COLLEGE—Springfield, Mass. Regular summer session, phys. ed. and coaching. G. B. Affleck, director.

STATE COLLEGE OF WASHINGTON Pullman, Washington. June 17-July 12. J. F. Bohler, director.

TEXAS TECH—Lubbock, Texas. Aug. 5-16. P. W. Cawthon, director. See advertisement page 22.

UNIVERSITY OF WISCONSIN—Madison, Wisconsin. July 1-Aug. 9. Walter E. Meanwell, director.

Baseball Quiz

THE following is one of the examinations which Jack Coombs, baseball coach at Duke University, North Carolina, has given in his baseball coaching course. Try it on yourself and your players.

1—Describe the proper stance for a pitcher to take for his wind-up; the proper stance with a runner on first base; with a runner on second base.

2—On what plays should a pitcher back up third base? What plays should bring him back of his catcher?

3—State four plays where the catcher must give instructions to his fellow player.

4—State every situation in which a catcher may make dangerous throws to bases occupied by runners.

5—If there is a runner on third base, state every infield play that can be made on this runner and the final position of each infielder.

6—What are the qualifications which should decide the selecting of a man for an infield position.

True or false?

Infielders should always watch outfielders make their plays.

Home plate is 129 feet from second base.

The pitching rubber is 61 feet 6 inches from home plate.

Infielders should always try for a force play on a fumbled ball.

Infielders should always lift their heads before fielding a ground ball in order to see where the base-runner is.

8—State the position of the first baseman's feet before he catches a throw from another infielder.

9—With a runner on second base and an out being attempted at first, what should be the uppermost thought in the mind of the first baseman after he has caught the ball for the out? Describe fully the probable plays that could result.

10—How should a second baseman attempt to stop an effort for a delayed steal?

11—When should a second baseman always cover second base for an attempted steal?

12—What are the requirements for a second baseman?

13—What are the requirements for a shortstop?

14—Does the shortstop back up any fielding plays? If so, what are they?

15—Runners on first and second; the situation prompts a bunt, what should the shortstop do in the defensive play?

16—How should the third baseman start his double play with runners on first and second when a ground ball is hit to him? With bases full, home team on the defense, leading by one run in the fifth inning? In the ninth inning?

17—Why should the third baseman always protect his base with opposing base runners in scoring position?

18—How should an outfielder start a relay throw? Should he notice the direction the wind is blowing? If so, why?

19—What is meant by the phrase, "challenge the runner"?

20—Play your infield in the following situations:

Runners on first and third in the second inning, none or one out, no score.

Runner on third in the seventh, your team on the defense leading by two runs.

Runners on first and third in the eighth, your team on the defense, leading by two runs.

Runner on third in the ninth, your team on the defense, leading by one run.

Baseball

[Continued from page 15]

He must consider the weight and length, diameter of handle and hitting surface.

For myself, I like a long bat. In fact, they tell me I use the longest bat in the American League. Then again, I probably pull my left foot back further than any other hitter in our league. But, I have made my share of base hits regardless of "having one foot in the bucket." It goes to emphasize the point that a batter should experiment not only until he finds the best bat suited to him but until he finds a stance from which he can obtain the best results.

Should the coach of high school players attempt to teach his batters to place their hits? Yes and no. The more advanced batters—the boys who can set themselves at the plate with confidence and tell a good ball from a bad one and act accordingly—can be given instruction and practise in place hitting. These boys are ripe for the more "scientific" game; they have free, powerful swings; a good eye; a stout heart; and, as Victor Moore sang in the musical comedy "Let 'Em Eat Cake"—they "know a foul ball when they see one."

The rest of the squad—the boys who are still dodging roundhouse curves that signal their break half way down the alley, which are not going to come within a foot of the plate—these had better be kept to the rudiments until they show more of the stuff hitters are made of.

I have known of several big leaguers, among them myself, who started out in the big time as consistent left-field hitters. We were later coached to delay our swing somewhat, and thus be able to poke the ball to right or right-center. Consequently, the left fielders who had been camping under our drives were crossed up. Yes, after a fellow has learned *how* to bat it is time enough for him to know *where* to bat 'em. His age has nothing to do with his ripeness for this advanced technique; he may be a grade school boy or a high school boy or a college boy.

By Leon Goslin
Outfielder, Detroit Tigers

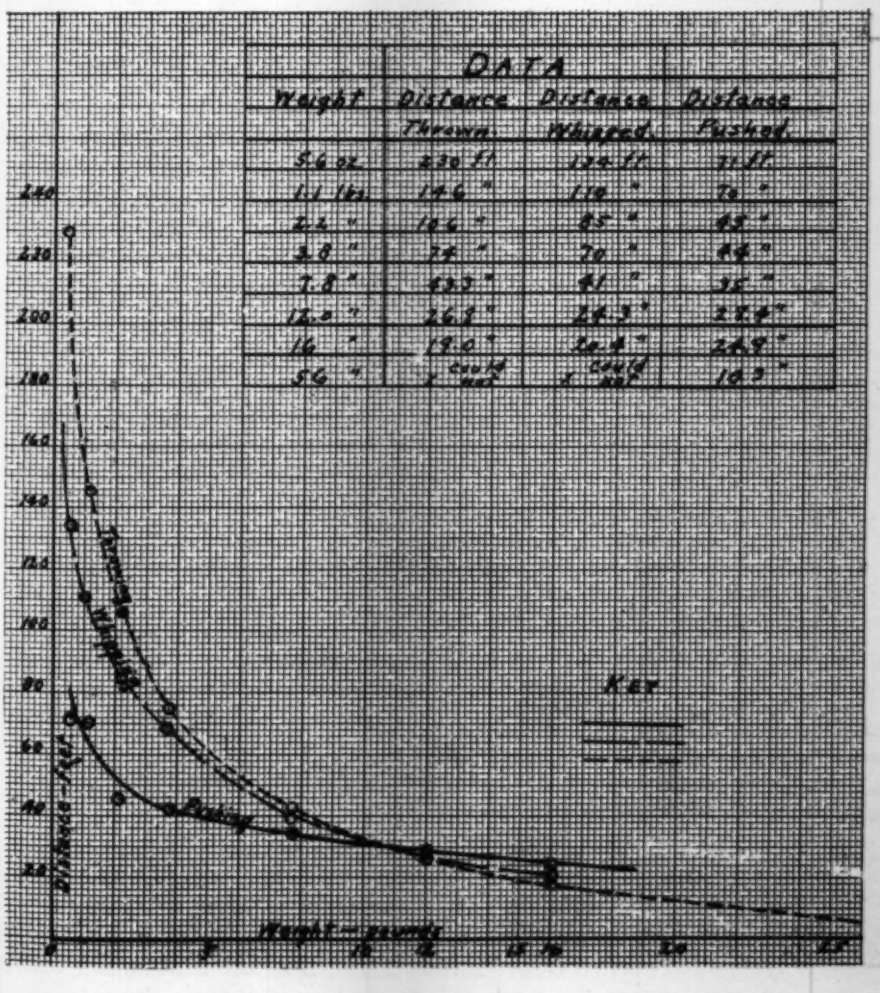
WHAT is good advice to give a boy who goes through all the motions of good batting—free, powerful, wrist-motivated swing, strong stance and all that—but who is a sucker for any fair-to-middlin' pitcher who has a change of pace? Generally, I should say that this batter's timing is off. He is probably swinging late at fast ones and early at the slower ones. Against pitchers who have no change of pace these batters do very well: it is the assortment of speeds that gets them down.

The remedy used to cure many a batter of this weakness is to give him long daily sessions of batting practise against pitchers who are instructed to mix 'em up, plain and fancy, with all the trimmings. When the batter's timing is off in attempting to hit one of these practise pitches the coach should ascertain that the batter realizes where his timing was off, and then order the pitcher to send two or three of that special variety down the alley.

Nonchalance is a great asset to a batter. Ty Cobb was a noted example of the perfectly nonchalant batter. A pitcher could never tell what Cobb was going to do. Never did he by the slightest motion give the pitcher the least inkling as to whether he was going to bunt, pull the hit over to right field, or push it past the third baseman. Heine Manush of Washington, who played alongside Cobb at Detroit for a few years, has absorbed some of Cobb's plate poise. Heine, like Cobb, is a place hitter. He endeavors to gather singles and doubles rather than triples and home runs. A knowledge of the pitcher's mannerisms and assortment of offerings is helpful to the place hitter. Of course, big leaguers have more of an opportunity to gather this knowledge than do high school players. However, it is surprising how much can be learned about a pitcher's peculiarities by observing him for just a few innings.

Batters should be coached to stand back in the box for a fast-ball pitcher and move up and closer to the plate when facing a pitcher noted for his curve ball. If a batsman shows a weakness in hitting low balls, get someone to throw him nothing but low ones until he overcomes his fault. If the batter is weak on curve balls, have him fed nothing but hooks.

Below: Illus. VII. Comparison of Pushing, Whipping and Throwing Round Objects of Various Weights. (Refer to Page 9, "Mechanics of the Shot Put" by Thomas K. Cureton.)



THE BREAST STROKE RACING TURN

The butterfly approach to the turn; recovery of the stroke under water

By Albert W. Gray

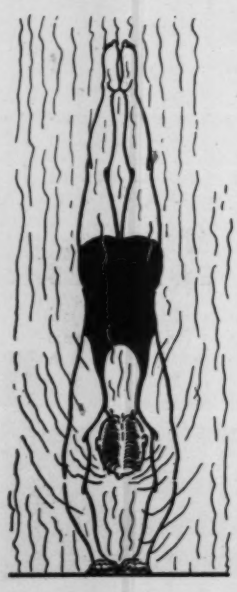
This is the concluding article of Mr. Gray's series on racing turns.

"IN executing a turn there shall be no anticipation of this movement, as the form of the breast stroke must be observed until the touch has actually been made," states the *Intercollegiate and Interscholastic Swimming Guide* (Rule IX, Breast Stroke). The trained contestant calculates the exact moment when the turn must be made, so as to be neither early nor late in making it.

The rules further state that "the touch must be made with both hands simultaneously." Reaching one hand and touching ahead of the other, tipping one shoulder, or twisting the body before touching constitutes a disqualification. Perhaps more disqualifications occur in the breast sroke than in any other event in competitive swimming.

While there is not so much scope for individual differences in the breast stroke turn as in the free style and back stroke turns (Jan., Feb., 1935, Scholastic Coach) there is still some freedom of choice allowed breast stroke swimmers. Some of them depend more on the wall than do others, and where there is a gutter they seize it with both hands and employ it as a pivot for spinning the body around through the force of the arms. Other breast stroke swimmers withdraw one arm immediately after the contact and use it in a sculling movement, employing the other hand against the wall until the body is half way turned around. Still others withdraw both hands immediately after the contact, depending entirely on their sculling movements to spin the body around close to the wall.

FIG. 1



The recent sanction of the butterfly style of breast stroke (Feb., 1935, Scholastic Coach) recalls the manner in which this is said to have been developed as a stroke. Its early use was confined to making the turn. Walter Spence of Rutgers, famed free-styler and breast-stroker, attracted considerable attention several years ago, when, in approaching the turn, he broke the character of his orthodox stroke by continuing the arms, with locked elbows, all the way back to the hips with a swift, deft, powerful double-arm stroke which sent him leaping out of the water toward the wall. Whipping his arms out of the water he had them out in front of him in time to capitalize fully on the increased pace and force of this butterfly approach.

For the purpose of considering its full execution, the breast stroke turn may be divided into six phases: (1) the approach, or anticipation of the turn; (2) contacting the wall; (3) the turning of the body; (4) the push-off; (5) the glide; (6) recovery of the stroke after the glide.

1. Anticipation of the turn. The approach or anticipation of the turn must not include any movement which will cause the shoulders to be out of a plane parallel to the surface of the water or cause them not to be at right angles to the line of forward progress. To glide into the turn is the most common method of approach, keeping close watch so that the distance may be properly calculated. When in the natural rhythm of the stroke the swimmer would make contact with the wall no extra precautions are necessary, but when the distance to the wall is too great or too small an extra short stroke is necessary. Sometimes an extra kick while the hands are held forward in the glide position will suffice to keep up the momentum and quickly bring the body to the wall. The butterfly approach previously mentioned, where both arms are carried forward above the surface of the water to make the contact, is undeniably a time-saver at the moment, but it exacts such a toll on energy that it remains to be decided by the individual whether it is worth the price that must be paid for it. The extra push gained from the added sweep of the arms as they are carried back in some cases adds to the momentum causing the swimmer to arrive at the turn sooner than if the regular stroke were used.

FIG. 2

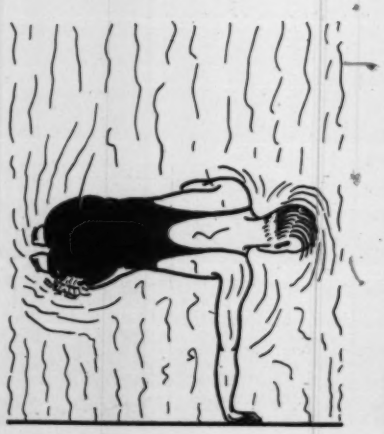


FIG. 3

2. Contacting the wall. Either a finger tip touch or a flat hand touch may be used. Great care should be taken to make contact with both hands simultaneously. (See Fig. 1.) Even extending one hand ahead of the other in anticipation of the turn will be cause for a disqualification.

3. The execution of the turn. In pools having a scum gutter it is quite common for some swimmers to grasp it firmly as the feet are pulled forward. Is this an aid to rapid performance? For some it may be, but others cannot do it without coming to a perceptible stop, with its consequent loss of time. The quicker way seems to be to drop one hand from the wall as the feet are being brought forward and the body is turning about (Fig. 2). Keep the head low and the body curled in a ball until ready for the push-off.

4. The push-off. The position which a swimmer will assume prior to the push-off is of prime importance. (See Figs. 3, 4, and 5.) The body should be in a flat position, the shoulders and hips level, the head held down between the outstretched arms. The buttocks should be at about the water level and both the feet placed firmly on the wall well up. The position of the feet below the level in which the body will travel after it has been impelled forward plays an important part in the momentum which the swimmer is able to attain.

5. The glide after the push. An extended glide after the push-off will allow a short rest before the stroking is resumed. The length of the glide

depends on the distance of the swim and the momentum which the swimmer has been able to gather. The glide should take place just below the surface of the water to avoid the slowing-up which will accompany a surface glide. The slower glide on the surface is caused by a combination of existing surface tension on the water and the

FIG. 4: FEET TOO LOW

resistance offered by built up waves from the body's forward motion.

6. Starting the stroke after the glide. Walter Savell of Yale, holder of the short course 200-yard breast stroke intercollegiate record of 2 minutes, 29 seconds, made January 17, 1934, contributed much to the development of the underwater phase of the breast stroke. Savell not only swam underwater for the first length after the start, but employed two or three underwater strokes after each turn.

A common fault among high school breast stroke swimmers is to come to the surface too soon after the glide, lifting the head high, gasping for air. Much loss of momentum accompanies the lifting of the head in this manner

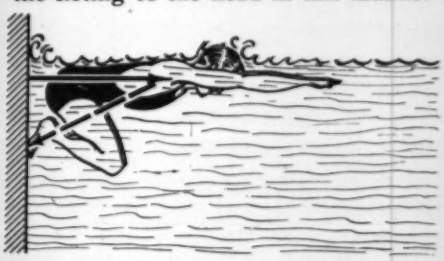


FIG. 5: FORCE BETTER APPLIED

because of an attendant dropping of the hips which throws the body off its level plane, whereby it meets a greater amount of resistance. If one or two strokes were taken while the body is under water, stroke carried out the full length from forward position to the backward position, and the body allowed to come to the surface by its natural tendency to float, the momentum gained from the push-off would be complemented at a time when the push-off momentum by itself would be too far spent to be of any value. It is important not to start the underwater stroking too soon after the push-off, for the early momentum of the push-off is great enough to supply a speed which is far in excess of what the stroke can do.

Over the Field

This department is conducted by Hyman Krakower, Ph.D., a member of the staff of the Department of Hygiene, College of the City of New York.

A Test of Physical Fitness

THE Health and Physical Education Division* of the New York State Department of Education advocates the use of the *Physical Fitness Index*, devised by Dr. Frederick Rand Rogers, as a test of dynamic physiologic health or "physical fitness" for activity, in junior and senior high schools. These tests are used in connection with medical examinations, as a fundamental screening device for the purpose of effecting a suitable classification of pupils. All pupils should be examined by the school medical supervisor before taking the tests.

The items of the tests and the apparatus needed are as follows:

A. Boys

Age (years and months)
Weight (pounds) .....Scales
Height (feet and inches).....Stadiometer
Pullups (number of times).....Two rings
Pushups (number of times)....Parallel bars
Lift-legs (pounds)
.....Back and leg dynamometer
Lift-back (pounds)
.....Back and leg dynamometer
Grip-left (pounds) .....Manuometer
Grip-right (pounds) .....Manuometer
Lung capacity (cubic inches)
.....Wet spirometer and individual mouth pieces

B. Girls

The strength tests for girls are the same as those for boys with two exceptions, pushups and pullups. Girls are seldom able to chin themselves or pushup on the parallel bars. Consequently, if these tests were given, no records would be available from which to estimate girls' arm strength. The apparatus and procedure† for these two tests are:

Pushups.....Stall bar bench and mat. The stall bar bench is placed on the mat to prevent slipping. The girl assumes a "front leaning rest" position for the pushups.

Pullups.....Mat, two rings, and a horizontal bar (four feet from the floor) from which the rings are suspended. The starting position is a "back leaning hang" position.

Special forms are provided to simplify the tabulation of the scores made. A sample is shown below.

The scores made by each pupil in the seperate items of the test are added and constitute the individual's strength index (S.I.). A quotient, called the physical fitness index (P.F.I.) is obtained by dividing the achieved S.I. by the norm for the age and weight of the individual. The norm tables for boys and for girls are different and are adjusted to all combinations of age and weight (for the junior and the senior high school student). After the division the index (P.F.I.) is multiplied by 100 to eliminate decimals. Scores above 100 indicate the percentage above the normal and scores below indicate the percentage below the normal. For example, a score of 91 is 9 percent below the normal. It is estimated that if properly organized, the tests can be given to pupils in groups at the approximate rate of one pupil per minute.

Name	(Sample) *Smith, John*	
Grade	*10*	
Age	*16 y*	*1 m*
Weight	*158*	—
Height	*71*	—
$(\frac{Wt.}{10}+Ht-60)$ *Multiplier*	—	*27*
Pullups	*9*	—
Pushups	*7*	*16*
Arm Strength	*1*	*6 2*
	2	*7*
Lift–Legs	*5*	*7 0*
Lift–Back	*3*	*3 0*
Grip–Left	*1*	*1 8*
Grip–Right	*1*	*2 4*
Lung capacity	*2*	*8 2*
STRENGTH INDEX	*1 8 5 6*	
Normal S. I.	*2 0 4 2*	
PHYSICAL FITNESS INDEX	*91*	
Classification	C	

Sample Physical Record Card
Rogers' Test

How the data are used:

1. Having tested the pupils, arrange the records in progressive order according to P.F.I.'s beginning with the lowest, and on up to the highest.

2. After studying the lists in a general way, noting the ranges of P.F.I.'s and the approximate number of pupils who rank relatively low, medium, and high, establish points of division into three classifications.

3. Medical examinations are given prior to the tests and pupils found to be unfitted for the tests are placed automatically in the low group, in addition to those securing low physical fitness ratings.

4. A search is then made to ascertain the probable causes of low physical fitness in each case; looking for such factors as overweight, general weakness, growth abnormalities, orthopedic defects, etc.

5. Upon the basis of this search, suitable individual programs are determined, with the chief, though not the exclusive emphasis on the correction of physical abnormalities and health development.

6. As individuals in the low group show sufficient improvement they may be promoted to the middle group, which, it is assumed, can profit most by following the regular required program.

7. The superior group having demonstrated by their high P.F.I. that, with the possible exception of certain easily remediable defects, which should be corrected, they are in good physical condition, and they most likely have acceptable activity, interests and habits of exercise. In the senior high school pupils should be allowed to select their own activities, reporting to the physical director for advice and guidance. In the junior high school, the high P.F.I. group may be called upon to assist in the leadership and direction of other classes.

The testing and measuring program is thus seen to be the first step in discovering the pupils who have special needs and in organizing their program of physical education. The P.F.I. and the S.I. provide measuring rods both for the classification of pupils and for the progress they make, the tests being given once or twice a year.

Physical Capacity Index

H. Leigh MacCurdy presents a *Physical Capacity Index*[1] which he proved to be a reliable and valid instrument for measuring the power of the large muscle groups. The Leigh MacCurdy *Physical Capacity Index* is equal to the *Muscular Force Index* multiplied by the *Muscular Velocity Index*, and the product divided by one hundred. The development of the Muscular Force Index grew out of experiments with the Rogers Strength

*By permission of the Health and Physical Education Bureau (H. A. Jones, Director and W. W. H. Mustaine, Supervision).

†The detailed testing procedure for boys and girls is given in the following books written by Dr. Frederick Rand Rogers:

1. *Physical Capacity Tests in the Administration of Physical Education.* New York: Teachers College, Columbia University, 1925. Pp. 93. $1.50.
2. *Tests and Measurement Programs in the Redirection of Physical Education.* New York: Teachers College, Columbia University, 1927. Pp. 166. $1.75.
3. *Physical Capacity Tests.* New York: A. S. Barnes & Co., 1931. Pp. 53. $.75.
4. *Fundamental Administrative Measures in Physical Education.* Newton, Mass. The Pleiades Company, 1932. Pp. 260. $2.75.

[1]MacCurdy, H. Leigh. *A Test for Measuring the Physical Capacity of Secondary School Boys.* Yonkers, New York, 1933. Pp. 60.

Index. The test items and apparatus required for determining the Muscular Force Index are:

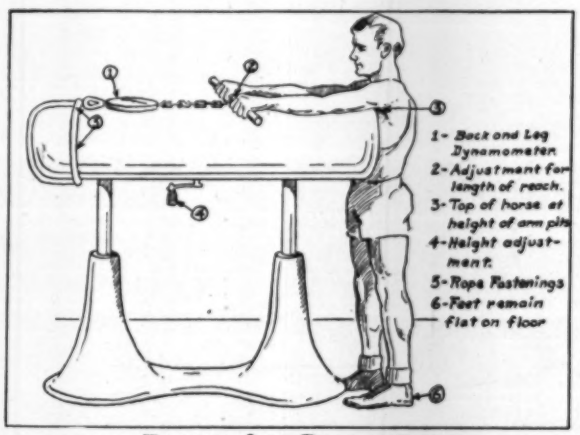
Leg force (pounds)
.....Back and leg dynamometer
Back force (pounds)
.....Back and leg dynamometer
Grip-right (pounds).....Manuometer
Grip-left (pounds) .....Manuometer
Arm-pull (pounds)
.....Back and leg dynamometer and long horse
Arm-push (pounds)
.....Back and leg dynamometer and long horse

MacCurdy omitted the lung capacity test of the Rogers series, as it is not measurable in pounds of force. He also found that the omitting of this item resulted in a higher correlation with athletic achievement. As arm pulling and pushing were thought to be more natural athletic movements than chinning and dipping, they were substituted, resulting in a higher correlation with athletic achievement than the latter items.

The Muscular Velocity Index, which is said to measure the ability of an individual to apply force with maximum acceleration was obtained by securing the difference between an individual's standing height and the top of his best vertical jump. (Five trials allowed, measured in inches.) The Velocity Index is simply the maximum vertical distance a subject can project his own weight up in the air. It is based upon the test first used by Sargent[2] and which has been used in modified form by others (Bovard and Cozens, Schwegler and Englehardt, L. W. Sargent, and McCloy).

Name	Jones, Henry
Date	2 – 5 – 35
Grade	10
Age	16 – 6
Weight	150
Height	68
V. Jump 1	18.5
V. Jump 2	18.0
Leg Force	600
Back Force	300
Grip-Right	110
Grip-left	100
Arm Pull	250
Arm Push	200
Total Force	1560
Best V. J.	18.5
Phys. Cap. I.	
T.F.×V. J. / 100	288

Sample Physical Record Card
MacCurdy Test



TESTING ARM-PULLING FORCE

From *A Test for Measuring the Physical Capacity of Secondary School Boys*, by MacCurdy.

A sample data card is shown in the next column:

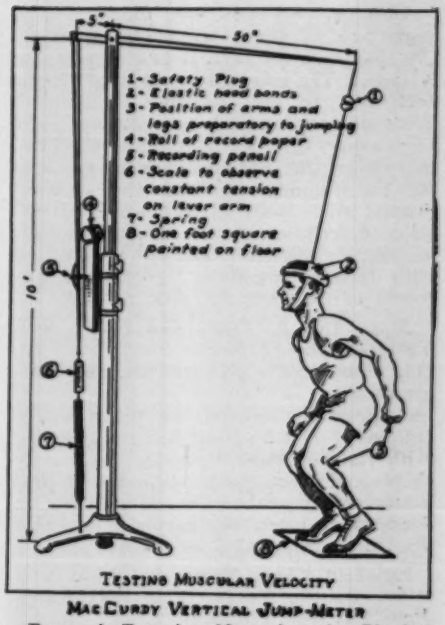
The Physical Capacity Test (MacCurdy) can be used for classifying pupils into homogeneous groups for physical education activities. The Index is a means of indicating the muscular needs of the individual and presupposes a thorough health examination. It is not intended that the Physical Capacity Index should be used to classify an individual as to his aptitude for any specific skill, as swimming or heavy apparatus.

The Index was not devised to measure specific athletic ability aside from the fact that athletic ability presupposes a high degree of physical capacity.

It is important to realize that the *norms* set up by MacCurdy from test data collected in Yonkers, N. Y., would only be useful in comparing boys from Yonkers. Only where high school boys from other sections of the country are like high school boys of Yonkers in capacities would the norms be comparable. It is recommended that each school or school system establish its own norms of physical capacity and only age levels where there are from two hundred to five hundred cases available.

Of the above two tests, the Rogers' Test has had wider use, thus making norms available for various age groups.

[2]D. A. Sargent. The Physical Test of a Man, *American Physical Education Review*, XXVI (April 1921), pp. 189-194.



TESTING MUSCULAR VELOCITY

MACCURDY VERTICAL JUMP-METER

From *A Test for Measuring the Physical Capacity of Secondary School Boys*, by MacCurdy.

Books—Track and Field

Abrahams, Harold M. and Abrahams, A. *Training for Athletes*. London: G. Bell and Sons, Ltd., 1928. Pp. 189, illustrated—photographs. $2.25.

A book written by an Olympic champion and a medical man. Anatomical and physiological principles of exercise and training make an interesting chapter of this text. The authors also include diet in relation to training; and injuries and other disabilities incidental to training, staleness, stitch, etc. The events that are not discussed are the hop-step and jump, the discus, the javelin and the pole-vault, due to lack of interest and authoritative information by the British in these events.

Butler, Guy M. *Modern Athletics*. New York: Macmillan Co., 1929. Pp. 152, illustrated—photographs. $4.

The author believes that action photographs are better than words, as indicated by the many photographs. The main principles of modern methods in each event are presented, with the exception of the pole vault, discus, hammer and javelin. They are omitted because the author "has had no experience with them." The material on the physiology of training is that of A. V. Hill, one of England's most outstanding physiologists.

Clark, Ellery H. *Track Athletics Up to Date*. New York: Duffield and Co., 1920. Pp. 146, illustrated—photographs. $2.

The author presents a brief history of track and field athletics, and a bibliography in the sport, up to 1919, listing some of the older works. A summary of present knowledge (1919) of proper methods of training and of performing the events on track and field is also included.

Frymir, Alice W. *Track and Field for Women*. New York: A. S. Barnes and Co., 1930. Pp. 208, illustrated—photographs and diagrams. $2.

The author discusses "form" and suggestions for training and coaching the track and field events in which women participate, including the basketball and baseball throw. Suggestions for squad classifications, mass competition, scoring systems and the organization of a track meet complete the book.

Gill, Harry L. *Track and Field Athletics for Coach and Contestant*. Champaign, Illinois: Bailey and Himes, 1925. Pp. 166, illustrated—diagrams and photographs. $3.75.

Gill, of the University of Illinois, presents to the track coach his viewpoints on form, selecting men for the various events, kind of work to be done, care of the body and general training hints, as well as form and training in each event on the track and field program. The text also includes "plans" for the construction of a running track, and a short description of how to conduct a track meet.

Hjertberg, Ernest W. *Athletics in Theory and Practice*. New York: G. P. Putnam's Sons, 1914. Pp. 280, illustrated—photographs. $1.25.

Although written more than twenty years ago, by the coach of the Swedish Olympic Team of 1912, it is still a useful reference. The volume is divided into three sections: part one, covering the general items of training and conditioning, such as massage, diet, sleep and fatigue. Part two covers the preparation and training for the running, hurdling and walking events; while part three consists of detailed description of the various branches of jumping and throwing. The book closes with training schedules for the various events of the track and field program.

Jones, Tom E. *Track and Field.* New York: Charles Scribner's Sons, 1927. Pp. 214, illustrated — photographs and diagrams. $2.

A practical text on the principles of training for the various events. Opening with fundamentals, it works, chapter by chapter, through the track and field program, ending with notes on preparation for a track meet. The material is amply illustrated and easily understood.

Littlefield, Clyde. *Track and Field Athletics.* Austin, Texas: Von Boeckmann-Jones Co., 1933. Pp. 94, illustrated—photographs and diagrams.

A handbook written by the head coach of track at the University of Texas. The text opens with a list of track records made in the Southwest conference and interscholastic league, and also world records. Developmental exercises, training schedules, and principles of coaching the various events of the track and field program are treated in short chapters. Training, conditioning and methods of conducting track meets are covered in brief form.

Lowe, D. G. A. and Porritt, A. E. *Athletics.* New York: Longmans, Green and Co., 1929. Pp. 373, illustrated—photographs. $5.

The scope of athletics is covered from three points of view, the technical side, the historical, and records. Some of the items covered are—the history of track and field starting at 3000 B.C.; the Olympic games; international athletics; general principles of training; and athletics for women and boys.

McCloy, Charles H. *The Measurement of Athletic Power.* New York: A. S. Barnes and Co., 1932. Pp. 178, illustrated—tables. $3.

McCloy, one of the outstanding men in the field of tests and measurements in physical education, has developed a scoring table for the measurement of athletic performance, in track and field, as a means for motivating all boys and men in physical education groups to develop skills. A "Classification Index" was formulated, using the variables of age, height and weight (each item is weighted) as classifying and handicapping devices for boys. The Index is suggested as an aid to sectioning pupils into physically homogeneous groups for purposes of track and field competition or for general physical education activities.

Murphy, Michael C. *Athletic Training.* New York: Charles Scribner's Sons, 1914. Pp. 174, illustrated—photographs. $2.

A book that dates back to 1914, but does not seem to get old. Written by the foremost authority of his time on all kinds of athletic training, a man who had developed some of the most outstanding performers in the track world. The book was written primarily for the benefit of those who have not the advantage of professional coaches. Some important items covered, in addition to training for the track and field events, are diet, physical condition, prevention and treatment of injuries (including football injuries) and the athletic heart.

Mussabini, S. A. (in collaboration with **Ranson, C.**). *The Complete Athletic Trainer.* London: Methuen and Co., Ltd. 1913. Pp. 264, illustrated—photographs and diagrams.

The author, one of the foremost English trainers, explains timing, care of the track, measuring, fashioning raw material and athletic "types," as well as training for track and field athletics in fairly detailed form. Correct and incorrect procedures are explained. Although an old book, in terms of years, it is readily usable.

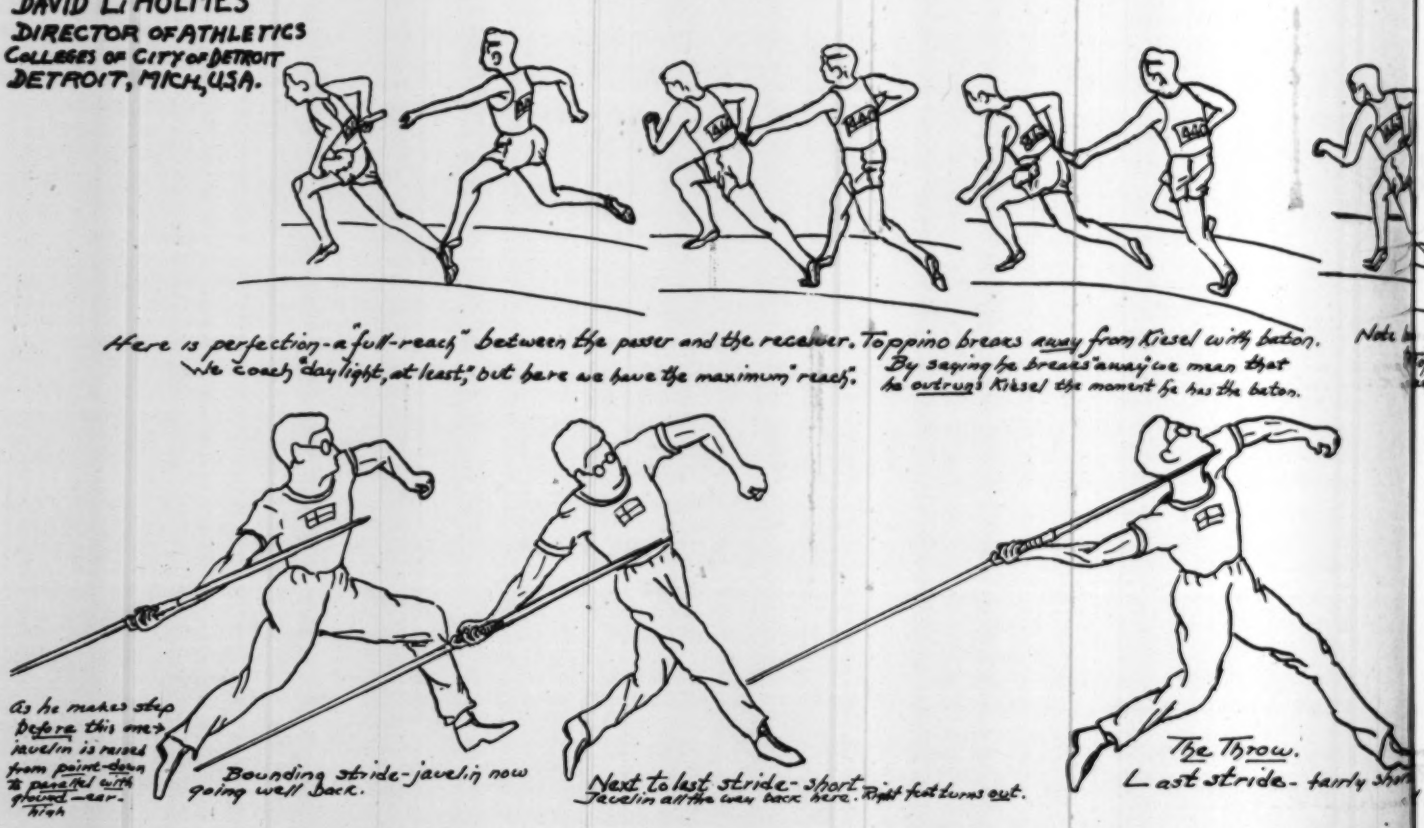
Olds, Lloyd W. *Track Athletics and Cross Country.* New York: A. S. Barnes and Co., 1930. Pp. 149, illustrated—photographs and diagrams. $2.

The book is intended as a guide for the high school coach and contestant. Included are training hints and the physiological effects of cross-country on high school boys. A study conducted by the author gives the sport a clean bill of health, when conducted under proper supervision. This supervision is described.

Paddock, Charles W. *Track and Field.* New York: A. S. Barnes and Co., 1933. Pp. 216, illustrated—photographs and diagrams. $2.50.

The man who was called the "fastest human," an Olympic sprint champion and world record holder, who is now the associate track coach of the Los Angeles Athletic Club, herein presents an excellent book. He opens the volume with a history of the Olympic games, and track and field in the United States. The events are discussed under the type of activity to which they belong. In part one, under *speed* is described the running events up through the half-mile, hurdles and relay racing. Part two contains the events of *stamina*, being distance running. Part three describes the events of *strength*, or shot-put,

Reduced page from "Movies on Paper" by David L. Holmes. Actual size of page is 22" x 8½".



discus, javelin, hammer throw, and weight throw. The fourth part is made up of the events containing the element of *spring*, being the jumping and vaulting events. The appendix contains outstanding achievements and records.

Robertson, Lawson. *Modern Athletics.* New York: Charles Scribner's Sons, 1932. Pp. 161, illustrated—photographs. $2.

The coach of the American Olympic teams presents his views on how to train for the various events of the track and field program. Training principles for each event are explained, and outstanding men are mentioned as illustrations of various "types."

Scholastic Coach. February issue. Texts of interest to the track coach will be found in "Over the Field," included among the bibliography of books on general athletics.

Spalding's Athletic Library. New York: American Sports Publishing Co.

A valuable series of handbooks for the contestant and the coach of track and field athletics. They are of two types: guides and intensive athletic manuals, as follows:

Guides

1R—Athletic Almanac—1935—Containing track and field records made in the Olympics, world records, national championships, etc. 25c.

117R—Amateur Athletic Union—Official Handbook, 1935. Including Track and Field Rules. 25c.

45R—Intercollegiate Association of Amateur Athletes of America—Official Handbook, 1935. Rules of Competition, constitution and records. 25c.

112R—National Collegiate Athletic Association—Official Handbook, 1935. Rules, records, honor roll and how to conduct a track meet are contained. 25c.

69R—Track and Field Athletics for Girls—1928. Including a competitive program and instructions for officials conducting a track meet. 25c.

115R—Athletic Activities for Women and Girls—1935. Edited by the women's athletic section of the American Physical Education Association. One section is devoted to track and field activities. 25c.

Athletic Manuals

500B—How to Sprint—Edited by Archie Hahn, 1929. In addition to the very detailed information on sprinting, a section is devoted on keeping the athlete fit, first-aid treatment and answers to practical training questions. 50c.

501B—College Athletics—Edited by Lawson Robertson, 1931. A handbook of instructions for the entire collegiate track and field program. 50c.

502B—Middle Distance and Relay Racing—Edited by J. E. (Tom) Meredith, 1929. Training, diet, etc., for the 440, 880 and relays. 50c.

503B—How to Hurdle—Edited by Boyd Comstock, 1929. Included are such items as form, physical requirements, training and the science of hurdling. Earl Thomson and J. K. Norton have contributed special articles on hurdling. 50c.

504S—Pole Vaulting—Edited by Henry F. Schulte, 1933. A comprehensive presentation of the different methods used by the leading pole vaulters. 75c.

505S—The High Jump—Edited by R. L. Templeton, 1930. Also included are special articles by Harold Osborn, Leroy Brown, George Horne, Clinton Larson and Wesley Oler, on their individual methods. 75c.

Holmes, David L. *Movies on Paper.* Detroit, Mich.: David L. Holmes, College of City of Detroit, 1935. Pp. 34, size 22"x8½". $2.50.

This unique book is now in a new edition, available this month. For the new edition Mr. Holmes has added studies of noted contemporary athletes not included in the earlier editions, and gives illustrations of "poor form" to compare with what is accepted as "good form." Mr. Holmes' book consists of line drawings from his motion pictures of leading track and field athletes. Explanatory text accompanies each page of drawings. It is visual instruction in a most interesting form.

Warner, Glen S. (in collaboration with Frank J. Taylor). *"Pop" Warner's Book for Boys.* New York: Robert M. McBride and Company, 1934. Pp. 315, illustrated—drawings. $2.

"Pop" Warner tells how a boy can set about training himself for sports from his earliest years, so that he may be a successful athlete. The book attempts to reach those boys who lack close contact with trained coaches to learn the fundamentals.

Webster, Frederick A. M. *Athletics.* London: George Allen and Unwin, Ltd., 1925. Pp. 224, illustrated—diagrams.

The book opens with a brief history of athletics in English public schools and information to the parents and teachers of the advantages and disadvantages for boys of secondary school age to train for certain events. The remainder of the text is divided into two sections. Part one contains the track events, and part two, the field events.

Webster, Frederick A. M. *Athletics of Today.* New York, London: Frederick Warner and Company, Ltd., 1929. Pp. 368, illustrated—photographs and diagrams. $5.

An excellent book, non-technical in nature and readily understood. The first part of the book contains a history of the growth of modern track and field athletics. Part two covers the training and conditioning for the track events; and part three, the field events.

Webster, Frederick A. M. *Athletics of Today for Women.* New York and London: Frederick Warner and Co., Ltd., 1930. Pp. 278, illustrated—photographs and diagrams. $4.50.

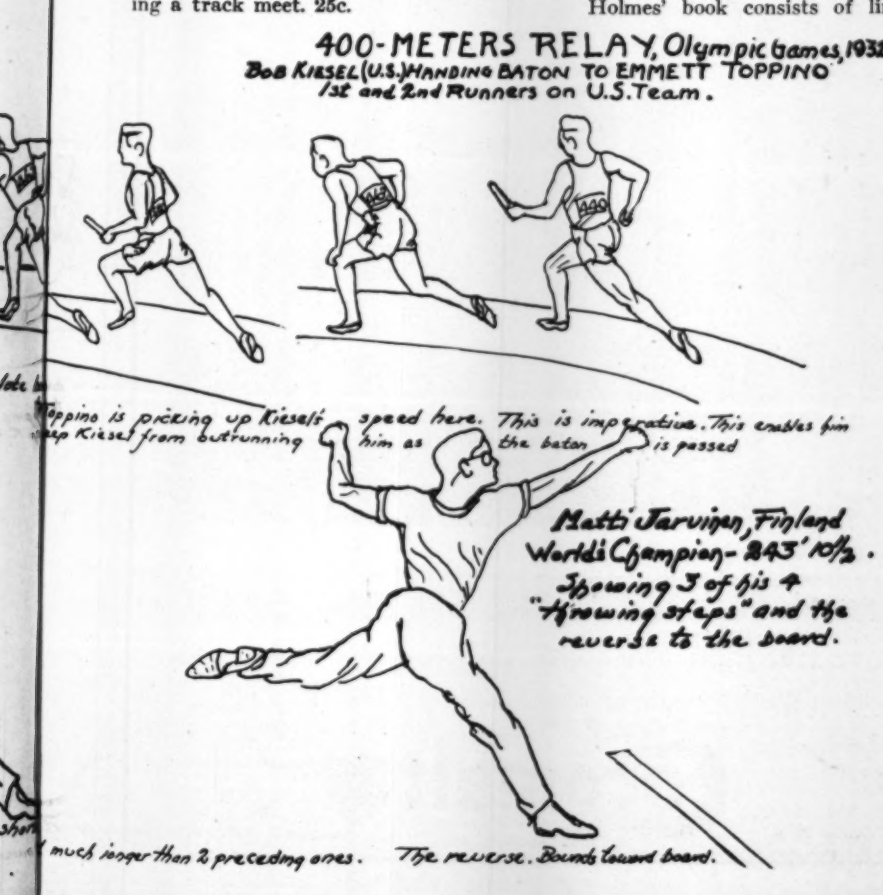
Uniform in style and contents with the volume for men described above. Part one contains the history and development of athletics for women, the case for women's athletics and the fight for inclusion in the Olympiads. Part two covers track and part three, the field events.

Webster, F. A. M., Jenkins, T. J. P. and Mostyn, R. V. *Success in Athletics.* London: Sidgwick and Jackson, Ltd., 1919. Pp. 240, illustrated—photographs and diagrams.

One of the earlier books written by Webster in conjunction with two others. In addition to covering the various items of the track and field program, individual chapters are devoted to such items as the build of the athlete, massage, exercise for developing the feet, the camera and the cinematograph in relation to athletics, and the management of an athletic meeting.

Wegener, Albert B. *Track and Field Athletics.* New York: A. S. Barnes and Co., 1925. Pp. 153, illustrated—charts and diagrams. $2.

In writing the book, the author tried to serve three groups of individuals. A brief comprehensive course of instruction for the athlete; detailed information for the coach of little experience on how to conduct meets, train athletes, etc., and third, to serve as a text on athletics for normal schools. The book should prove to be a handy guide to the physical educator as it includes more than just the track and field events, including various types of track athletics, tests and scoring methods. However, the track coach may find it inadequate as the various events are briefly described. Progressive pen and ink drawings illustrate rather well the activities explained in the book.



FOR YOUR BULLETIN BOARD

Keystone

ABOVE—WHAT THE WELL-DRESSED OFFICIALS ARE WEARING AT THE BIG INDOOR MEETS: The stiff-shirted judges at the finish line have no difficulty picking places for the 1,000-yard run as Charles Hornbostel of Indiana, intercollegiate half-mile champion, comes in eight yards ahead of Waldo Sweet, formerly of Amherst, in the Boston Garden.

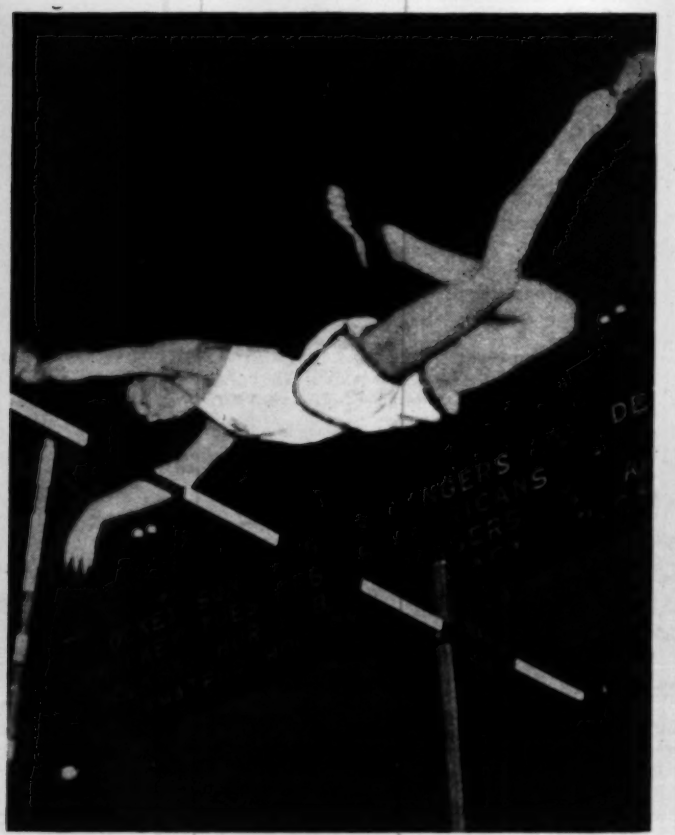
International

ABOVE—THE ROUGHEST, TOUGHEST GAME ON LAND OR SEA? A rare snatch of action from water polo, which, its adherents claim, is the most punishing game being played these days.

BELOW—A DARING YOUNG MAN FLIRTS WITH THE GALLERY GODS: Keith Brown, Yale's pole-vaulting ace and world's indoor record holder (14 ft. 4 in.), flying over the bar in Madison Square Garden, New York, to win the Millrose event at 14 ft. 1 in.

Washington Times

ABOVE—A REBOUND OFF THE BOARD TAPPED TO THE SIDE TO A WAITING TEAMMATE: An unusual action basketball photograph which caught a Central High School (Washington, D. C.) player tap-passing a rebound at the fullness of his height, to beat his opponent to the touch.



Associated Press

Latest Statement on Solicitation

Agreeing that solicitation "of the right kind" is a legitimate activity of colleges, the committee on recruiting of the Association of American Colleges condemned certain practices regarding the treatment of athletes. The action was taken at the annual meeting of the Association in Atlanta in January.

"Every institution," the committee said, "has a right to seek contacts with prospective students. The right kind of student solicitation will help a college to select the kind of student it desires to serve.

"In regard to the recruiting of athletes," the committee report said, "we take this occasion to reaffirm the historic position of. American educators that students who are athletes should receive 'no more and no less consideration' than any other group of students.

"All students," the committee agreed, "should be treated alike as regards scholarships, grants-in-aid, loans and jobs. We believe that this historic attitude is sound and that athletes themselves would benefit greatly if all institutions would receive and treat them exactly as all other students. We recognize that this situation is an ideal rather than a reality.

"We have no desire to fix the blame for the present deplorable situation in the recruiting of athletes and their subsidization, nor do we intend to go on a muckraking expedition to discover individual offenders against the idea we have announced."

The Physiology of Athletics

Blood Changes in Athletics

By Peter V. Karpovich, M. D.

OBSERVING under the microscope the circulation of the blood one cannot help but notice a striking similarity between its flow and the traffic in a big city.

Let us speak of the blood circulation as a very complicated subway system. In this subway we see a tremendous number of little yellowish round tanks moving in a practically unbroken stream. These are red blood corpuscles carrying oxygen one way and carbon dioxide on the way back to the lungs. We notice little lumps of white substance moving sluggishly along the walls of the blood vessels. If we are lucky enough we may notice how they push themselves through the walls of the blood vessels. They are white blood corpuscles doing their police and detective work.

We also may notice small clusters made of tiny flat particles. These are blood platelets, always ready to break into pieces and start a blood clot, in case the blood vessel is injured and there is a hemorrhage. This system differs from a regular subway in that the "trains" never stop. The flow will slow down to about .5 mm. per second instead of 500 mm. at the beginning. The oxygen and nutritive elements dissolved in the blood plasma will escape through the walls of the capillaries into surrounding lymph, due to a greater osmotic pressure in the blood plasma. On the other hand, the carbon dioxide and the other waste products will leave the lymph and go into the blood. Whenever blood plasma loses its oxygen it is immediately made good by the oxygen carried in the red blood corpuscles. When the blood plasma takes from the lymph all the carbon dioxide that the plasma can carry, some of it will be absorbed by the red blood corpuscles, which enables the plasma to take some more of this gas. One may compare the blood system with a rapid transit system and the lymph with a local delivery from the station to the consumer's house.

As we observe the city street we can readily notice how changes in the activity of the city affect the traffic. About three o'clock in the morning the streets are practically dead. Then between seven and nine we notice a rush to the places of work. The cars fill the streets, the trolleys go more frequently, the sidewalks are covered by briskly walking people. This observation can be continued through the whole day with various changes.

Somewhat analogous to this is the blood circulation. When the bodily activity changes, the blood traffic is also changed. Many capillaries in the muscles that have been closed, now are open and blood rushes through them. The blood moves faster. These two factors are responsible for an increased circulation through the working muscles, so that from three to eight times more blood passes through them than before. The number of the red and white blood corpuscles in the blood increases also. It will be impossible to mention in this article all the changes occurring in the blood, therefore only a few of the most important ones will be considered here.

The Red Blood Corpuscles

When an athlete engages in any strenuous exercise the number of the red blood corpuscles increases. If normally there are about 5,000,000 of them in every cubic mm. (250,000,000 in one drop) it may now become 6,000,000, the increase being from 3 to 20 per cent.

The beneficial effect of the increase in number of the red blood corpuscles is obvious, since it insures a greater oxygen supply to the working muscles. Yet it was only recently that the mechanism of this increase became clear. Dr. Barcroft showed that the spleen acts as a storage place for the red blood corpuscles. They are kept there for any possible emergency. When an intensive exercise begins, the spleen shrinks somewhat and the concentrated blood is sent into the general circulation. After the exercise has been discontinued, the number of the red blood corpuscles comes gradually to normal and the spleen regains its previous size. This is only a relative increase, because the total number of the red blood corpuscles is not changed. When intensive physical exercises are performed day after day for a considerable length of time, there is the possibility of an absolute increase in the number of the red blood corpuscles. The blood manufacturing tissue located in the red bone marrow is stimulated to a greater activity and the total number of the corpuscles increases. Not every investigator was able to demonstrate such a permanent change, but since such a reaction is logical and can be used as a good argument in favor of the physical exercises, physical directors as a profes-

sional body believe that it takes place *in every case*. This is the reason why so many of them insist on physical activities as a treatment for anemia, and do obtain often good results. This improvement cannot be considered as a positive proof of a direct effect of the exercise upon the blood forming organs. Anemia may be due to many different causes. Poor nutrition may be one of them. By giving some mild exercises to the patient his appetite may be stimulated, his nutrition may be bettered, general conditions of the organism improved, affecting the red bone marrow. On the other hand, this kind of treatment may be overdone. A mobilization of the population during war increases the activity of a nation, stimulates the production of indispensable objects for the successful protection of the country. But what happens if war is protracted? The country weakens. The same may be observed in a human organism. An energetic treatment of anemia may so weaken a person that it will take a long time to recover from the effects of the treatment.

The White Blood Corpuscles

White blood corpuscles divide into two large groups: lymphocytes and leucocytes. The striking difference between them is that the leucocytes are capable of an ameboid (independent) movement. The function of both groups is practically unknown. Sufficient evidence has been accumulated to show that they help in defense against the invading germs. Probably it is just one of many functions that they perform. During the last decade the interest in the white blood corpuscles has greatly increased. The changes observed in the number of the various subtypes has been advantageously utilized in the diagnosis and prognosis (prediction of the outcome) of a disease. The same method of study has been employed in connection with physical exercises. Dr. P. Egoroff, who made thousands of observations on athletes engaged in various types of activities, pointed to a relation between the changes in the "white blood picture" and intensity of the exercise and the degree of training of the athlete.

Alkali in blood

So much is heard at present about the alkalinity and acidity of the blood. Many diseases, including the common cold, are blamed on the "acid condition" of the blood. First of all, let us bear in mind that blood is never acid unless the person is dead, and even then not in every case. Human blood is always slightly alkaline. The pur-

pose of this alkalinity is to neutralize the acids produced during body activity. When the acid content of the blood increases, it will cause *a shift toward acidity*. The amplitude of the shift depends on the intensity of the activity and on the amount of acid wastes produced. It is obvious that a higher degree of alkalinity will be able to neutralize a greater amount of acids, postpone the fatigue and increase endurance. Having this in mind, some coaches attempted to increase the alkalinity either by giving athletes some alkali salts or feeding them a highly alkaline diet. This attempt revived the old dispute between the meat eaters and vegetable eaters, only under different banners. Now they are fighting as *acid eaters* against *alkali eaters*. Suppose we artificially increase the alkalinity of the blood. What would happen? If the amount of free alkali in the blood increases just .2 part per million, severe cramps and convulsions will start. On the other hand, a slight addition of the acid will cause labored breathing and inability to sustain even a mild physical exertion. Fortunately human blood possesses a remarkable degree of constancy of composition. If it were not so, it would have been disastrous. How does a coach who feeds his men alkaline diet know when the desired degree of alkalinity is reached? He merely keeps on feeding. Why is it that athletes using an "acid" diet do not become physical wrecks? The answer lies in this: You cannot change the composition of the blood to any great extent. Any resultant change *has to be within the limits of normalcy*.

Recent investigations carried out by Dr. Bishoff and his associates in California caused some disappointment among the alkali enthusiasts. Drinking a quart of orange juice, which is highly alkaline, had no effect on blood alkalinity. Eating one pound of steak also had no noticeable effect. Only one man out of four developed a slight shift toward acidity. Even this might have been normal or accidental. The so-called acid-forming foods taken for a period of time had no effect upon the average reaction of the blood. The same was true for the alkali-forming food. In order to have a definite increase in bodily alkalinity, the person had to consume one ounce of sodium citrate every day. This should impress faddists. What a coach should give to his men is nothing more or less than a balanced diet and the proper exercises, and nature will take care of the rest. It is interesting to note that some authors have reported an increased alkalinity of the blood due to a systematic vigorous training *irrespective* of the diet (Herxheimer, Full, Walin-

sky). When exercises were moderate there was no change in alkalinity. Wiessman found that overtraining resulted in a reduction of blood alkali.

Blood Sugar

Dr. A. Steinhause of George Williams College, whose work *Chronic Effects of Exercise* has been used in the preparation of this article, states that there "are no observations which indicate a change in the resting blood-sugar level induced by training." Edwards, Richard and Dill in their tests on football players found that a mild game without any excitement is not accompanied by any rise in blood-sugar: an exciting game is. Hoffman, Deutsh and Weiss reported only a mild fluctuation in the blood-sugar during a period of strenuous work (including 10,000 meters) in well trained athletes, but recorded a drop in blood-sugar among poorly trained athletes. A drop in blood-sugar leads to the symptoms of weakness. Men run in a semi-conscious state and even collapse. This observation led to the use of sugar during a prolonged physical activity such as the Marathon run. More recently it has been used before exercises of a short duration like running or swimming 100 yards, although there is no reliable evidence that sugar is utilized in these cases. W. Pampe showed that this preliminary intake of sugar had no beneficial effect upon muscular work of a short duration.

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High School Tennis

The growth of high school interest in the promotion of tennis as one of the most worthwhile of the carry-over sports is indicated by the increased number of applications for the Scholastic tennis award received to date, in comparison with the number received last year. Applications for the medallion which Scholastic awards to the boys and girls winning their school tournaments have been received from 1,223 schools up to February 20, almost double the number received this time last year.

At the rate the applications are now being received for the 1935 season, the supply of medallions will be exhausted by the end of this month. Schools desiring the medallion are urged to apply at once by letter addressed to Scholastic Tennis Editor, 250 East 43rd Street, New York City. Where separate boys' and girls' tournaments are conducted the school will receive two medallions. The medallions are the size of a silver dollar, and are packed in an attractive box. They are now being mailed out, so that the schools may display them in advance of the spring tournaments.